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2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation

Arizona

Revised March 2003

U.S. Department of the Interior
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Secretary

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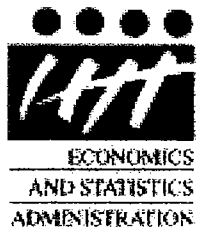

Economics and Statistics Administration

Kathleen B. Cooper
Under Secretary for Economic Affairs

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As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure their development in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The mission of the Department's Fish and Wildlife Service is to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people. The Service is responsible for national programs of vital importance to our natural resources, including administration of the Federal Aid in Sport Fish Restoration and the Federal Aid of Wildlife Restoration Programs. These two grant programs provide financial assistance to the States for projects to enhance and protect fish and wildlife resources and to assure their availability to the public for recreational purposes. Multistate grants from these programs pay for the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

Suggested Citation

U.S. Department of the Interior, Fish and Wildlife Service and U.S. Department of Commerce, U.S. Census Bureau. *2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.*

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Foreword

Fish and wildlife resources are part of our American culture. Whether we are fishing, hunting, watching wildlife or feeding backyard birds, Americans derive many hours of enjoyment from wildlife-related recreation. Wildlife recreation is the cornerstone of our Nation's great conservation ethic.

The 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation is a partnership effort with the States and national conservation organizations, and has become one of the most important sources of information on fish and wildlife recreation in the United States. It is a useful tool that quantifies the economic impact of wildlife-based recreation. Federal, State, and private organizations use this detailed information to manage wildlife, market products, and look for trends. The 2001 Survey is the tenth in a series that began in 1955.

More than 82 million U.S. residents fished, hunted, and watched wildlife in 2001. They spent over $108 billion pursuing their recreational activities, contributing to millions of jobs in industries and businesses that support wildlife-related recreation. Furthermore, funds generated by licenses and taxes on hunting and fishing equipment pay for many of the conservation efforts in this country.

Wildlife recreationists are among the Nation's most ardent conservationists. They not only contribute financially to conservation efforts, but also spend time and effort to introduce children and other newcomers to the enjoyment of the outdoors and wildlife.

I appreciate the assistance of those who took time to participate in this valuable survey. We all can be grateful that America's great tradition of wildlife-related recreation remains strong.

Steve Williams
Director, U.S. Fish and Wildlife Service
U.S. Department of the Interior

Survey Background and Method

The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (Survey) has been conducted since 1955 and is one of the oldest and most comprehensive continuing recreation surveys. The purpose of the Survey is to gather information on the number of anglers, hunters, and wildlife-watching participants (formerly known as nonconsumptive wildlife-related participants) in the United States. Information also is collected on how often these recreationists participate and how much they spend on their activities.

Preparations for the 2001 Survey began in 1999 when the International Association of Fish and Wildlife Agencies (IAFWA) asked us, the Fish and Wildlife Service, to conduct the tenth national survey of wildlife-related recreation. Funding came from the Multistate Conservation Grant Programs, authorized by Sport Fish and Wildlife Restoration Acts, as amended.

We consulted with State and Federal agencies and nongovernmental organizations such as the Wildlife Management Institute and American Sportfishing Association to determine survey content. Other sportspersons' organizations and conservation groups, industry representatives, and researchers also provided valuable advice.

Four regional technical committees were set up under the auspices of the IAFWA to ensure that State fish and wildlife agencies had an opportunity to participate in all phases of survey planning and design. The committees were made up of agency representatives.

Data collection for the Survey was carried out in two phases by the U.S. Census Bureau. The first phase was the screen which began in April 2001. During the screening phase, the Census Bureau interviewed a sample of 80,000 households nationwide to determine who in the household had fished, hunted, or engaged in wildlife-watching activities in 2000, and who had engaged or planned to engage in those activities in 2001. In most cases, one adult household member provided information for all household members. The screen primarily covered 2000 activities while the next, more in-depth phase covered 2001 activities. For more information on the 2000 data, refer to Appendix C.

The second phase of the data collection consisted of three detailed interview waves. The first wave began in April 2001, the second in September 2001, and the last in January 2002. Interviews were conducted with samples of likely anglers, hunters, and wildlife watchers who were identified in the initial screening phase. These interviews were conducted primarily by telephone, with in-person interviews for those respondents who could not be reached by telephone. Respondents in the second survey phase were limited to those at least 16 years old. Each respondent provided information pertaining only to his or her activities and expenditures. Sample sizes were designed to provide statistically reliable results at the State level. Altogether, interviews were completed for 25,070 respondents from the sportspersons sample and 15,303 from the wildlife watchers sample. More detailed information on sampling procedures and response rates is found in Appendix D.

Comparability With Previous Surveys

The 2001 Survey's questions and methodology were similar to those used in the 1996 and 1991 Surveys. Therefore, the estimates of all three surveys are comparable.

The methodology of the 2001, 1996, and 1991 Surveys did differ significantly from the 1985 and 1980 Surveys, so their estimates are not directly comparable to those earlier surveys. The changes in methodology included reducing the recall period over which respondents had to report their activities and expenditures. Previous Surveys used a 12-month recall period which resulted in greater reporting bias. Research found that the amount of activity and expenditures reported in 12-month recall surveys was overestimated in comparison with that reported using shorter recall periods. See the Summary Section and Appendix B.

Highlights

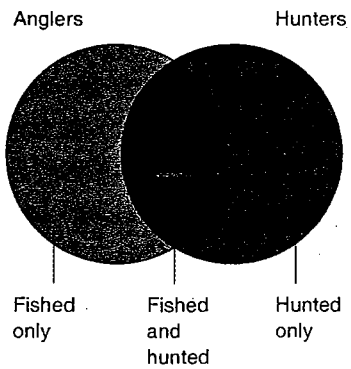
Introduction

The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation reports results from interviews with U.S. residents about their fishing, hunting, and other wildlife-related recreation. This report focuses on 2001 participation and expenditures of U.S. residents 16 years of age and older.

In addition to the 2001 numbers, we also provide 11-year trend data. The 2001 numbers reported can be compared with those in the 1991 and 1996 Survey reports because these three surveys used similar methodologies. However, the 2001 estimates should not be directly compared with the results from Surveys earlier than 1991 because of changes in methodology. These changes were made to improve accuracy in the information provided. Trend information from 1991 to 2001 is presented in Appendix B.

The report also provides information on participation in wildlife-related recreation in 2000, particularly of persons 6 to 15 years of age. The 2000 information is provided in Appendix C. Additional information about the scope and coverage of the Survey can be found in the Survey Background and Method section of this report. The remainder of this section defines important terms used in the Survey.

Sportspersons



Wildlife-Associated Recreation

Wildlife-associated recreation includes fishing, hunting, and wildlife-watching activities. These categories are not mutually exclusive because many individuals enjoyed fish and wildlife in several ways in 2001. Wildlife-associated recreation is reported in two major categories: (1) fishing and hunting and (2) wildlife watching (formerly nonconsumptive wildlife-related recreation). Wildlife watching includes observing, photographing, and feeding fish and wildlife.

Fishing and Hunting

This Survey reports information about residents of the United States who fished or hunted in 2001, regardless of whether they were licensed. The fishing and hunting sections of this report are organized to report three groups: (1) sportspersons, (2) anglers, and (3) hunters.

Sportspersons

Sportspersons are those who fished or hunted. Individuals who fished or hunted commercially in 2001 are reported as sportspersons only if they also fished or hunted for recreation. The sportspersons group is composed of the three subgroups in the diagram below: (1) those who fished and hunted, (2) those who only fished, and (3) those who only hunted. The total number of sportspersons is equal to the sum of people who only fished, only hunted, and both hunted and fished. It is not the sum of all anglers and all hunters, because those people who both fished and hunted are included in both the angler and hunter population and would be incorrectly counted twice.

Anglers

Anglers are sportspersons who only fished plus those who fished and hunted. Anglers include not only licensed hook-and-line anglers, but also those who have no license and those who use special methods such as fishing with spears. Three types of fishing are reported: (1) freshwater, excluding the Great Lakes, (2) Great Lakes, and (3) saltwater. Since many anglers participated in more than one type of fishing, the total number of anglers is less than the sum of the three types of fishing.

Hunters

Hunters are sportspersons who only hunted plus those who hunted and fished. Hunters include not only licensed hunters using common hunting practices, but also those who have no license and those who engaged in hunting with a bow and arrow, muzzleloader, other primitive firearms, or a pistol or handgun. Four types of hunting are reported: (1) big game, (2) small game, (3) migratory bird, and (4) other animals. Since many hunters participated in more than one type of hunting, the sum of hunters for big game, small game, migratory bird, and other animals exceeds the total number of hunters.

Wildlife-Watching Activities (formerly Nonconsumptive Wildlife-Related Recreation)

Since 1980, the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation has included information on wildlife-watching activities in addition to fishing and hunting. However, the 1991, 1996, and 2001 Surveys, unlike the 1980 and 1985 Surveys, collected data only for those activities where the primary purpose was wildlife watching (observing, photographing, or feeding wildlife). The Survey uses a strict definition of wildlife watching. Participants must either take a "special interest" in wildlife around their homes or take a trip for the "primary purpose" of wildlife watching. Secondary wildlife-watching activities such as incidentally observing wildlife while pleasure driving were included in the 1980 and 1985 Surveys but not in the succeeding ones.

Two types of wildlife-watching activity are reported: (1) nonresidential and (2) residential. Because some people participate in more than one type of wildlife-watching activity, the sum of participants in each type will be greater than the total number of wildlife watchers. The two types of wildlife-watching activities are defined below.

Nonresidential (away from the home)

This group included persons who took trips or outings of at least 1 mile for the primary purpose of observing, feeding, or photographing fish and wildlife. Trips to fish, hunt, or scout and trips to zoos, circuses, aquariums, or museums were not considered wildlife-watching activities.

Residential (around the home)

This group included those whose activities are within 1 mile of home and involve one or more of the following: (1) closely observing or trying to identify birds or other wildlife; (2) photographing wildlife; (3) feeding birds or other wildlife on a regular basis; (4) maintaining natural areas of at least one-quarter acre where benefit to wildlife is the primary concern; (5) maintaining plantings (shrubs, agricultural crops, etc.) where benefit to wildlife is the primary concern; or (6) visiting public parks within 1 mile of home for the primary purpose of observing, feeding, or photographing wildlife.

2001 Arizona Summary

(Participants 16 years old and older)

Activities in the United States by Arizona Residents

Fishing

Anglers	**394,000**
Days of fishing	4,327,000
Average days per angler	11
Total expenditures	$326,068,000
Trip-related	$137,212,000
Equipment and other	$188,856,000
Average per angler	$828
Average trip expenditure per day	$32
Trip and equipment expenditures by Arizonans out of state	$37,441,000

Hunting

Hunters	**124,000**
Days of hunting	1,649,000
Average days per hunter	13
Total expenditures	$225,651,000
Trip-related	$84,175,000
Equipment and other	$141,476,000
Average per hunter	$1,821
Average trip expenditure per day	$51
Trip and equipment expenditures by Arizonans out of state	$35,285,000

Wildlife Watching

Total wildlife-watching participants	**1,107,000**
Nonresidential	329,000
Residential	1,063,000
Total expenditures	$771,105,000
Trip-related	$174,232,000
Equipment and other	$596,868,000
Average per participant	$696
Trip and equipment expenditures by Arizonans out of state	$117,797,000

Activities in Arizona by U.S. Residents

Fishing

Anglers	**919,000**
Days of fishing	4,246,000
Average days per angler	10
Total expenditures	$936,293,000
Trip-related	$442,269,000
Equipment and other	$494,024,000
Average per angler	$680
Average trip expenditure per day	$33
Trip and equipment expenditures by nonresidents in Arizona	$48,265,000

Hunting

Hunters	**148,000**
Days of hunting	1,674,000
Average days per hunter	11
Total expenditures	$211,506,000
Trip-related	$64,950,000
Equipment and other	$146,555,000
Average per hunter	$1,380
Average trip expenditure per day	$38
Trip and equipment expenditures by nonresidents in Arizona	$10,994,000

Wildlife Watching

Total wildlife-watching participants	**1,465,000**
Nonresidential	638,000
Residential	1,063,000
Total expenditures	$820,718,000
Trip-related	$304,677,000
Equipment and other	$516,041,000
Average per participant	$560
Trip and equipment expenditures by nonresidents in Arizona	$225,668,000

Wildlife-Associated Recreation

Participation in Arizona

The 2001 Survey revealed that 1.7 million Arizona residents and nonresidents 16 years old and older fished, hunted, or wildlife watched in Arizona. Of the total number of participants, 419 thousand fished, 148 thousand hunted, and nearly 1.5 million participated in wildlife-watching activities, including observing, feeding, and photographing wildlife.

The sum of anglers, hunters, and wildlife watchers exceeds the total number of participants in wildlife-related recreation because many individuals engaged in more than one wildlife activity.

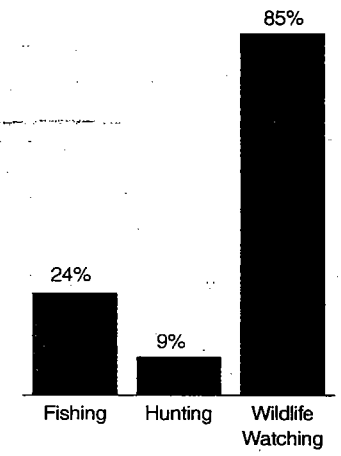
Participation by 6- to 15-year-old Arizona Residents

The focus of this report is on the activity of participants 16 years old and older since they are the primary source of wildlife-associated expenditures. However, the activity of 6 to 15 year olds can be calculated using the screening data covering the year 2000. It is assumed for estimation purposes that the relative activity levels of 6- to 15-year-old participants and participants 16 years old and older remained the same from 2000 to 2001. Based on this assumption, in addition to the 394,000 resident anglers 16 years old and older in Arizona, there were 152,000 resident anglers 6 to 15 years old. Also, there were 124,000 16-year-old and older Arizonans and 28,000 6- to 15-year-old Arizonans who hunted. Finally, there were 1,107,000 Arizonans 16 years old and older and 216,000 Arizonans 6 to 15 years old who wildlife watched. Further information on 6 to 15 year olds is provided in Appendix C.

Expenditures in Arizona

In 2001, state residents and nonresidents spent $1.6 billion on wildlife recreation in Arizona. Of that total, trip-related expenditures were $512 million and equipment purchases totaled $1.0 billion. The remaining $67 million was spent on licenses, contributions, land ownership and leasing, and other items and services.

Percent of Total Participation by Activity
(Total: 1.7 million participants)

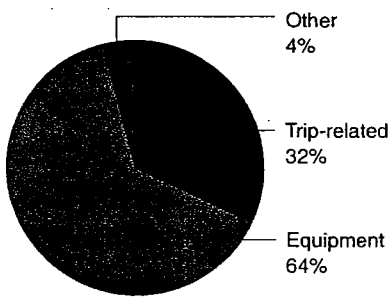


Participants in Wildlife-Associated Recreation in Arizona—2001
(U.S. residents 16 years old and older)

Total	**1.7 million**
Sportspersons	
Total	**486 thousand**
Anglers	419 thousand
Hunters	148 thousand
Wildlife Watchers	
Total	**1.5 million**
Residential	1.1 million
Nonresidential	638 thousand

Source: Tables 3, 24, 40
Detail does not add to total because of multiple responses.

Wildlife-Associated Recreation Expenditures in Arizona
(Total: $1.6 billion)



Sportspersons

In 2001, 486 thousand state resident and nonresident sportspersons 16 years old and older fished or hunted in Arizona. This group comprised 419 thousand anglers (86 percent of all sportspersons) and 148 thousand hunters (30 percent of all sportspersons). Among the 486 thousand sportspersons who fished or hunted in the state, 338 thousand (70%) fished but did not hunt in Arizona. Another 66 thousand (14%) hunted but did not fish there. The remaining 81 thousand (17%) fished and hunted in Arizona in 2001.

Sportspersons' Participation in Arizona

(State residents and nonresidents 16 years old and older)

Sportspersons (fished or hunted)	**486 thousand**
Anglers	**419 thousand**
Fished only	338 thousand
Fished and hunted	81 thousand
Hunters	**148 thousand**
Hunted only	66 thousand
Hunted and fished	81 thousand

Source: Table 1

Details do not add to totals because of multiple responses.

Anglers

Participants and Days of Fishing

In 2001, 419 thousand state residents and nonresidents 16 years old and older fished in Arizona. Of this total, 351 thousand anglers (84%) were state residents and 68 thousand anglers (16%) were nonresidents. Anglers fished a total of 4.2 million days in Arizona—an average of 10 days per angler. State residents fished 3.9 million days, 91 percent of all fishing days within Arizona compared to nonresidents who fished 403 thousand days—9 percent of all fishing days in the state.

There were 394 thousand Arizonans 16 years old and older who fished in the United States in 2001. These anglers fished a total of 4.3 million days. Approximately 351 thousand resident anglers (89%) fished in Arizona. They spent 3.8 million days, 89 percent of their total fishing days, fishing in their resident state.

Some state residents fished in other states as well as in Arizona. In 2001, 84 thousand anglers fished in other states—21 percent of the resident angler total. They fished 485 thousand days as nonresidents, representing 11 percent of all days fished by Arizona residents. For further details about fishing in Arizona, see Table 3.

Anglers in Arizona
(State residents and nonresidents 16 years old and older)

Anglers	**419 thousand**
Residents	351 thousand
Nonresidents	68 thousand
Days of fishing	**4.2 million**
Residents	3.9 million
Nonresidents	403 thousand

Source: Table 3.

In State/Out-of-State
(State residents 16 years old and older)

Arizona anglers	**394 thousand**
In Arizona	351 thousand
In other states	84 thousand
Days of fishing	**4.3 million**
In Arizona	3.8 million
In other states	485 thousand

Source: Table 3.
Detail does not add to total because of multiple responses.

Fishing Expenditures in Arizona

Anglers 16 years old and older spent $336 million on fishing expenses in Arizona in 2001. Trip-related expenditures including food and lodging, transportation, and other expenses totaled $142 million—42 percent of all their fishing expenditures. They spent nearly $69 million on food and lodging and $40 million on transportation. Other trip expenses such as equipment rental, bait, and cooking fuel totaled close to $34 million. Each angler spent an average of $339 on trip-related costs during 2001.

Anglers spent nearly $182 million on equipment in Arizona in 2001, 54 percent of all fishing expenditures. Fishing equipment (rods, reels, line, etc.) totaled $49 million—27 percent of the equipment total. Auxiliary equipment expenditures (tents, special fishing clothes, etc.) and special equipment expenditures (boats, pickups, etc.) amounted to $133 million, 73 percent of the equipment total. Special and auxiliary equipment are items that were purchased for fishing, but could be used in activities other than fishing.

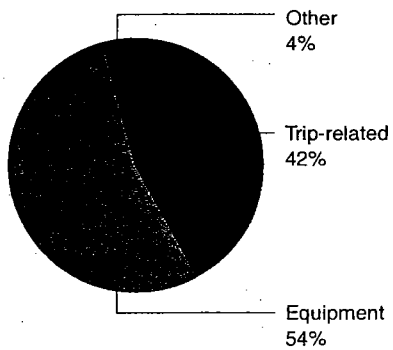
The purchase of other items such as magazines, membership dues, licenses, permits, stamps, and land leasing and ownership amounted close to $13 million—4 percent of all fishing expenditures. For more details about fishing expenditures in Arizona, see Tables 19, 21-23.

Fishing Expenditures in Arizona
(State residents and nonresidents 16 years old and older)

Total	**$336 million**
Trip-related	$142 million
Equipment	$182 million
Fishing	$49 million
Auxiliary and special	$133 million
Other	$13 million

Source: Table 19

Fishing Expenditures in Arizona
(Total: $336 million)



Hunters

Participants and Days of Hunting

In 2001, there were 148 thousand residents and nonresidents 16 years old and older who hunted in Arizona. Resident hunters numbered 119 thousand accounting for 81 percent of the hunters in Arizona. There were 28 thousand nonresidents who hunted in Arizona—19 percent of the State's hunters. Residents and nonresidents hunted 1.7 million days in 2001, an average of 11 days per hunter. Residents hunted on 1.5 million days in Arizona or 91 percent of all hunting days, while nonresidents spent 148 thousand days hunting in Arizona, 9 percent of all hunting days.

There were 124 thousand Arizona residents 16 years old and older who hunted in the United States in 2001. Of the total 1.6 million days of hunting by state residents, 1.5 million days (94 percent of the total) were spent pursuing game within Arizona. For more information on hunting activities by Arizona residents, see Table 3.

Hunters in Arizona

(State residents and nonresidents 16 years old and older)

Hunters	**148 thousand**
Resident	119 thousand
Nonresident	28 thousand
Days of hunting	**1.7 million**
Resident	1.5 million
Nonresident	148 thousand

In State/Out of State

(State residents 16 years old and older)

Arizona hunters	**124 thousand**
In Arizona	119 thousand
In other states	
Days of hunting	**1.6 million**
In Arizona	1.5 million
In other states	

Source: Table 3

Sample size too small to reliably report data.

Detail does not add to total because of multiple responses.

Hunting Expenditures in Arizona

Hunters 16 years old and older spent $212 million in Arizona in 2001. Trip-related expenses such as food and lodging, transportation, and other trip costs totaled $65 million—31 percent of their total expenditures. They spent $34 million on food and lodging and $21 million on transportation. Other expenses such as equipment rental totaled $10 million for the year. The average trip-related expenditure per hunter was $442.

Hunters spent $125 million on equipment—59 percent of all hunting expenditures. Hunting equipment (guns, ammunition, etc.) totaled $61 million and comprised 49 percent of all equipment costs. Hunters spent $64 million on auxiliary equipment (tents, special hunting clothes, etc.) and special equipment (boats, pickups, etc.), accounting for 51 percent of total equipment expenditures for hunting. Special and auxiliary equipment are items that were purchased for hunting but could be used in activities other than hunting.

The purchase of other items such as magazines, membership dues, licenses, permits, and land leasing and ownership cost hunters $21 million—10 percent of all hunting expenditures. For more details on hunting expenditures in Arizona, see Tables 20-23.

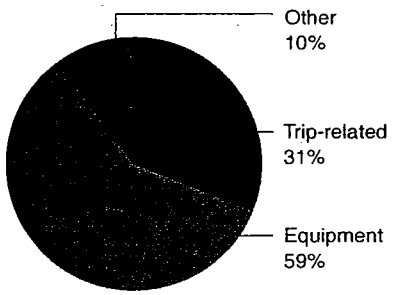
Hunting Expenditures in Arizona

(State residents and nonresidents 16 years old and older)

Total	**$212 million**
Trip-related	$65 million
Equipment	$125 million
Hunting	$61 million
Auxiliary and special	$64 million
Other	$21 million

Source: Table 20

Hunting Expenditures in Arizona
(Total: $212 million)



Wildlife-Watching Activities

Participants and Days of Activity

In 2001, nearly 1.5 million U.S. residents 16 years old and older fed, observed, or photographed wildlife in Arizona. Approximately 73 percent—1.1 million of the wildlife watchers—enjoyed their activities close to home and are called "residential" participants. Those persons who enjoyed wildlife at least 1 mile from home are called "nonresidential" participants. People participating in nonresidential activities in Arizona in 2001 numbered 638 thousand—44 percent of all wildlife watchers in Arizona. Of the 638 thousand, 271 thousand were state residents and 367 thousand were nonresidents.

Wildlife-Watching Participants in Arizona

(State residents and nonresidents 16 years old and older)

Total	**1.5 million**	**100%**
Residential	1.1 million	73%
Nonresidential	638 thousand	44%

Source: Table 24.
Detail does not add to total because of multiple responses.

Nonresidential (away from home) Wildlife-Watching Participation in Arizona

(State residents and nonresidents 16 years old and older)

Participants, total	**638 thousand**
Observe wildlife	604 thousand
Photograph wildlife	356 thousand
Feed wildlife	97 thousand
Days, total	**4.6 million**
Observe wildlife	2.3 million
Photograph wildlife	1.7 million
Feed wildlife	1.0 million

Source: Table 25.
Detail does not add to total because of multiple responses.

Residential (around the home) Wildlife-Watching Participation in Arizona

(State residents 16 years old and older)

Total	**1.1 million**
Feed wildlife	860 thousand
Observe wildlife	791 thousand
Photograph wildlife	232 thousand
Visit public areas	200 thousand
Maintain plantings	174 thousand
Maintain natural areas	123 thousand

Source: Table 28.
Detail does not add to total because of multiple responses.

Arizonans 16 years old and older who enjoyed nonresidential wildlife watching within their state totaled 271 thousand. Of this group, 268 thousand participants observed wildlife, 116 thousand photographed wildlife, and 53 thousand fed wildlife. Since some individuals engaged in more than one of the three nonresidential activities during the year, the sum of wildlife observers, feeders, and photographers exceeds the total number of nonresidential participants.

Arizonans spent nearly 2.5 million days engaged in nonresidential wildlife-watching activities in their state. During 2001, they spent 2.3 million days observing wildlife, 727 thousand days photographing wildlife, 684 thousand days feeding wildlife. The sum of days observing, feeding, and photographing wildlife exceeds the total days of wildlife-watching activity because individuals may have engaged in more than one activity on some days. For further details about nonresidential activities, see Table 25.

Arizona residents also took an active interest in wildlife around their homes. In 2001, 1.1 million state residents enjoyed observing, feeding, and photographing wildlife within 1 mile of their homes. Among this residential group, 860 thousand fed wildlife, 791 thousand observed wildlife, and 232 thousand photographed wildlife around their homes. Another 200 thousand participants visited public parks within a mile of home; 174 thousand participants maintained plantings for the benefit of wildlife; and 123 thousand participants maintained natural areas of one-quarter acre or more for wildlife. Adding the participants in these six activities results in a sum that exceeds the total number of residential participants because many people participated in more than one type of residential activity. For further details about Arizona residents participating in residential wildlife-watching activities, see Table 28.

Wild Bird Observers

Bird watching attracted many wildlife enthusiasts in Arizona. In 2001, nearly 1.2 million people observed birds around the home and on trips. A majority, 66 percent (771 thousand), observed wild birds around the home while 50 percent (588 thousand) took trips away from home to watch birds.

People bird watching in Arizona varied in their ability to identify different bird species. Within Arizona, 853 thousand of these 1.2 million birders (73 percent) could identify 1 to 20 different types of birds; 193 thousand birders (17 percent) could identify 21 to 40 types of birds; and 84 thousand birders (7 percent) could identify 41 or more types of birds.

Approximately 58 thousand wild bird enthusiasts kept birding life lists in 2001. Participants keeping these lists—a tally of bird species seen by a birder during his or her lifetime—comprised 5 percent of all wild bird observers in Arizona. For further details about birding in Arizona, see Tables 30 and 31.

Wildlife-Watching Expenditures in Arizona

Participants 16 years old and older spent $821 million on wildlife-watching activities in Arizona in 2001. Trip-related expenditures, including food and lodging ($194 million), transportation ($98 million), and other trip expenses such as equipment rental ($13 million) amounted to $305 million. This summation comprised 37 percent of all wildlife-watching expenditures by participants. The average trip-related expenditure for nonresidential participants was $478 per person in 2001.

Wildlife-watching participants spent nearly $485 million on equipment—59 percent of all their expenditures. Specifically, wildlife-watching equipment (binoculars, special clothing, etc.) totaled $128 million, 26 percent of the equipment total. Auxiliary equipment expenditures (tents, backpacking equipment, etc.) and special equipment expenditures (campers, trucks, etc.) amounted to $356 million—74 percent of all equipment costs. Special and auxiliary equipment are items that were purchased for wildlife-watching recreation but can be used in activities other than wildlife-watching activities.

Other items purchased by wildlife-watching participants such as magazines, membership dues, and contributions, land leasing and ownership, and plantings totaled $32 million—4 percent of all wildlife-watching expenditures. For more details about wildlife-watching expenditures in Arizona, see Table 33.

Wild Bird Observers in Arizona

(State residents and nonresidents 16 years old and older)

Participants, total	**1.2 million**	**100%**
Residential (around the home)	771 thousand	66%
Nonresidential (away from home)	588 thousand	50%
Days, total	**118 million**	**100%**
Residential (around the home)	114 million	97%
Nonresidential (away from home)	4 million	3%

Source: Table 30

Participants and total days do not add because of multiple responses

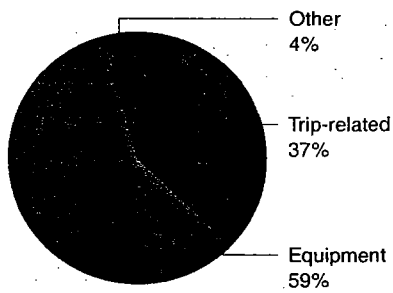
Wildlife-Watching Expenditures in Arizona

(State residents and nonresidents 16 years old and older)

Total	**$821 million**
Trip-related	$305 million
Equipment	$485 million
Wildlife-watching	$128 million
Auxiliary and special	$356 million
Other	$32 million

Source: Table 33

Wildlife-Watching Expenditures in Arizona
(Total: $821 million)



1991-2001 Survey Comparisons

Comparing the estimates from the 1991, 1996, and 2001 National Surveys provides a picture of wildlife-related recreation in the 1990s and early 2000s in Arizona. Only the most general recreation comparisons are presented here.

The best way to compare estimates from surveys is to compare the confidence intervals around the estimates—not to compare the estimates themselves. A 90-percent confidence interval around an estimate gives the range of estimates that 90 percent of all possible representative samples would supply. If the 90-percent confidence intervals of two survey's estimates overlap, it is not possible to say the two estimates are statistically different at the 10 percent level of significance.

The state resident estimates cover the participation and expenditure activity of Arizona residents anywhere in the United States. The in-state estimates cover the participation, day, and expenditure activity of U.S. residents in Arizona.

The expenditure estimates were made comparable by adjusting the estimates for inflation—all dollar estimates are in 2001 dollars. Also, expenditure items that were not common to each survey were not included in the comparisons. Therefore, expenditure estimates used in the comparisons may not match the estimates presented elsewhere in this report.

Arizona: 1991 and 2001 Comparison

	1991	2001	Percent change
Fishing			
(Numbers in thousands)			
Anglers in state	480	419	
Days in state	4,074	4,296	
In-state trip-related expenditures	$203,936	$140,567	
State resident anglers	388	304	
Total expenditures by state residents	$389,470	$324,476	
Hunting			
(Numbers in thousands)			
Hunters in state	152	148	
Days in state	1,556	1,694	
In-state trip-related expenditures	$50,362	$64,291	
State resident hunters	133	124	
Total expenditures by state residents	$199,684	$224,919	
Nonresidential Wildlife Watching			
(Numbers in thousands)			
Participants in state	320	668	
Days in state	5,922	4,584	
State resident participants	435	329	-24%
Residential Wildlife Watching			
(Numbers in thousands)			
Total participants	1,041	1,063	
Observers	733	791	
Feeders	902	860	
Wildlife-Watching Expenditures			
(Numbers in thousands)			
Trip-related expenditures by state residents	$129,368	$165,998	
Total expenditures by state residents	$413,344	$691,858	+67%

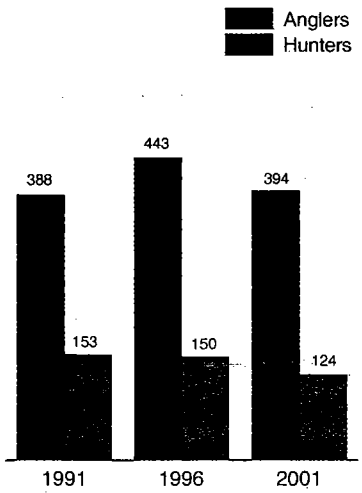
*No significant difference at the 0.10 level of significance.

Arizona 1996 and 2001 Comparison

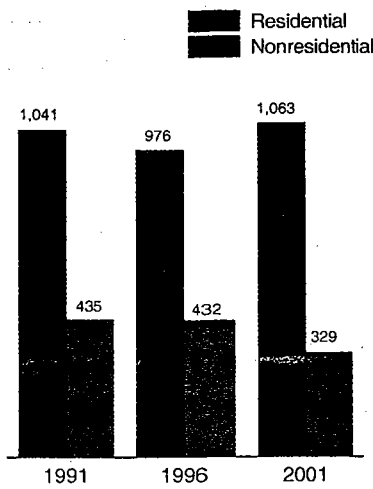
	1996	2001	Percent change
Fishing			
(Numbers in thousands)			
Anglers in state	542	419	-23
Days in state	4,689	4,246	-9
In-state trip-related expenditures	$207,236	$140,567	-32
State resident anglers	443	394	-11
Total expenditures by state residents	$306,932	$324,420	6
Hunting			
(Numbers in thousands)			
Hunters in state	167	148	-11
Days in state	1,630	1,692	4
In-state trip-related expenditures	$73,582	$64,291	-13
State resident hunters	150	124	-17
Total expenditures by state residents	$285,054	$324,791	14
Nonresidential Wildlife Watching			
(Numbers in thousands)			
Participants in state	745	638	-14
Days in state	9,447	4,364	-54
State resident participants	492	329	-33
Residential Wildlife Watching			
(Numbers in thousands)			
Total participants	976	1,063	9
Observers	600	791	32
Feeders	792	860	9
Wildlife-Watching Expenditures			
(Numbers in thousands)			
Trip-related expenditures by state residents	$176,940	$165,998	-6
Total expenditures by state residents	$713,063	$891,858	25

No significant difference at the 0.10 level of significance.

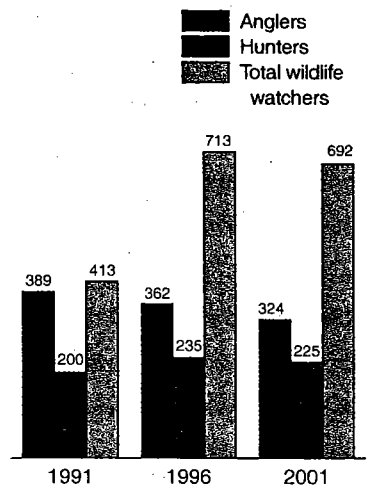
Number of Arizona Resident Hunters and Anglers: 1991-2001
(Thousands)



Number of Arizona Resident Wildlife Watchers: 1991-2001
(Thousands)



Total Expenditures by Arizona Residents: 1991-2001
(Millions. In constant 2001 dollars)



Guide to Statistical Tables

Purpose and Coverage of Tables

The statistical tables of this report were designed to meet a wide range of needs for those interested in wildlife-related recreation. Special terms used in these tables are defined in Appendix A.

The tables are based on responses to the 2001 Survey which was designed to collect data about participation in wildlife-related recreation. To have taken part in the Survey, a respondent must have been a U.S. resident (a resident of one of the 50 states or the District of Columbia). No one residing outside the United States (including U.S. citizens) was eligible for interviewing. Therefore, reported state and national totals do not include participation by those who were not U.S. residents or who were residing outside the United States.

Comparability With Previous Surveys

The numbers reported can be compared with those in the 1991 and 1996 Survey Reports. The methodology used in 2001 was similar to that used in 1996 and 1991. These results should not be directly compared to results from surveys earlier than 1991 since there were major changes in methodology. These changes were made to improve accuracy in the information provided.

Coverage of an Individual Table

Since the Survey covers many activities in various places by participants of different ages, all table titles, headnotes, stubs, and footnotes are designed to identify and articulate each item being reported in the table. For example, the title of Table 2 shows that data about anglers and hunters, their days of participation, and their number of trips are being reported by type of activity. By contrast, the title of Table 7 indicates that it contains data on freshwater anglers and the days they fished for different species of fish.

Percentages Reported in the Tables

Percentages are reported in the tables for the convenience of the user. When exclusive groups are being reported, the base of a percentage is apparent from its context because the percents add to 100 percent (plus or minus a rounding error). For example, if a table reports the number of trips taken by big game hunters (57 percent), those taken by small game hunters (23 percent), those taken by migratory bird hunters (12 percent), and those taken by sportspersons hunting other animals (8 percent), then these percentages would total 100 percent because they are exclusive categories.

Percents should not add to 100 when nonexclusive groups are being reported. Using Table 2 as an example, note that adding the percentages associated with total number of big game hunters, total small game hunters, total migratory bird hunters, and total hunters of other animals will not necessarily yield 100 percent because respondents could hunt for more than one type of game.

When the base of the percentage is not apparent in context, it is identified in a footnote. For example, Table 12 reports 3 percentages with different bases: one for the number of hunters, one for the number of trips, and one for days of hunting. Footnotes are used to clarify the bases of the reported percentages.

Footnotes to the Tables

Footnotes are used to clarify the information or items that are being reported in a table. Symbols in the body of a table indicate important footnotes. These symbols are used in the tables to refer to the same footnote each time they appear:

- * Estimate based on a small sample size.
- ... Sample size too small to report data reliably.
- W Less than .5 dollars.
- Z Less than .5 percent.
- X Not applicable.
- NA Not available.

Estimates based upon fewer than 10 responses are regarded as being based on a sample size that is too small for reliable reporting. An estimate based upon at least 10 but fewer than 30 responses is treated as an estimate based on a small sample size. Other footnotes appear, as necessary, to qualify or clarify the estimates reported in the tables. In addition, these two important footnotes appear frequently:

- Detail does not add to total because of multiple responses.
- Detail does not add to total because of multiple responses and nonresponse.

"Multiple responses" is a term used to reflect the fact that individuals or their characteristics fall into more than one category. Using Table 2 as an example, those who fished in saltwater and freshwater appear in both of these totals. Yet each angler is represented only once in the "Total, all fishing" row. Similarly, in Table 12 those who hunt for big game and small game are counted only once as a hunter in the "Total, all hunting" row. Therefore, totals may be smaller than the sum of subcategories when multiple responses exist.

"Nonresponse" exists because the survey questions were answered voluntarily and some respondents did not or could not answer all the questions. The effect of nonresponses is illustrated in Table 18 where the total for hunting expenditures may be greater than the sum for the different types of hunting expenditures. This occurs because some respondents did not specify the type of hunting as the primary purpose of the purchase. As a result, it is known that the expenditures were for hunting, but it is not known whether they were primarily for a particular type of hunting. In this case, totals are greater than the sum of subcategories when nonresponses have occurred.

Table 1. **Fishing and Hunting in Arizona by Resident and Nonresident Sportspersons: 2001**

(Population 16 years old and older. Numbers in thousands)

Sportspersons	Total, state residents and nonresidents		Residents		Nonresidents	
	Number	Percent of sportspersons	Number	Percent of resident sportspersons	Number	Percent of nonresident sportspersons
Total sportspersons (fished or hunted)	**486**	**100**	**393**	**100**	**93**	**100**
Total anglers	**419**	**86**	**351**	**89**	**68**	**73**
Fished only	338	70	273	70	65	70
Fished and hunted	81	17	78	20	...	...
Total hunters	**148**	**30**	**119**	**30**	***28**	***30**
Hunted only	66	14	*41	*11	...	...
Hunted and fished	81	17	78	20	...	...

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses.

Table 2. **Anglers and Hunters, Days of Participation, and Trips in Arizona by Type of Fishing and Hunting: 2001**

(Population 16 years old and older. Numbers in thousands)

Type of fishing and hunting	Participants		Days of participation		Trips	
	Number	Percent	Number	Percent	Number	Percent
FISHING						
Total, all fishing	**419**	**100**	**4,246**	**100**	**2,863**	**100**
Total, all freshwater	419	100	4,246	100	2,863	100
Freshwater, except Great Lakes	419	100	4,246	100	2,863	100
Great Lakes	...	...	...	...	...	...
Saltwater	...	...	...	...	...	...
HUNTING						
Total, all hunting	**148**	**100**	**1,694**	**100**	**1,142**	**100**
Big game	81	55	860	51	347	30
Small game	72	49	645	38	442	39
Migratory bird	62	42	335	20	272	24
Other animals	...	...	...	...	...	...

... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses and nonresponse.

Table 3. **Anglers and Hunters, Trips, and Days of Participation: 2001**

(Population 16 years old and older. Numbers in thousands)

Anglers and hunters, trips, and days of participation	Activity in Arizona						Activity by Arizona residents in United States					
	Total, state residents and nonresidents		State residents		Nonresidents		Total, in state of residence and in other states		In state of residence		In other states	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
FISHING												
Total anglers	419	100	351	84	68	16	394	100	351	89	84	21
Total trips	2,863	100	2,717	95	146	5	2,878	100	2,717	94	162	6
Total days of fishing	4,246	100	3,842	91	403	9	4,327	100	3,842	89	485	11
Average days of fishing	10	(X)	11	(X)	6	(X)	11	(X)	11	(X)	6	(X)
HUNTING												
Total hunters	148	100	119	81	*28	*19	124	100	119	96	...	...
Total trips	1,142	100	1,076	94	*66	*6	1,112	100	1,076	97	...	...
Total days of hunting	1,694	100	1,546	91	*148	*9	1,649	100	1,546	94	...	...
Average days of hunting	11	(X)	13	(X)	*5	(X)	13	(X)	13	(X)	...	(X)

(X) Not applicable. * Estimate based on a small sample size. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses.

Table 4. **Arizona Resident Anglers and Hunters by Place Fished or Hunted: 2001**

(State population 16 years old and older. Numbers in thousands)

Place fished or hunted	Anglers		Hunters	
	Number	Percent	Number	Percent
Total, all places	**394**	**100**	**124**	**100**
In-state only	310	79	111	89
In-state and other states	*41	*11	...	...
In other states only	*43	*11	...	...

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

Note: Detail may not add to total because of multiple responses and nonresponse.

Table 5. Arizona Resident Anglers and Hunters, Days of Participation, and Trips in the United States by Type of Fishing and Hunting: 2001

(State population 16 years old and older. Numbers in thousands)

Type of fishing and hunting	Participants		Days of participation		Trips	
	Number	Percent	Number	Percent	Number	Percent
FISHING						
Total, all fishing	**394**	**100**	**4,327**	**100**	**2,878**	**100**
Total, all freshwater	385	98	4,271	99	2,832	98
Freshwater, except Great Lakes	384	97	4,257	98	2,815	98
Great Lakes	...	...	...	...	...	...
Saltwater	*20	*5	*64	*1	*47	*2
HUNTING						
Total, all hunting	**124**	**100**	**1,649**	**100**	**1,112**	**100**
Big game	80	65	900	55	355	32
Small game	70	56	624	38	427	38
Migratory bird	*41	*33	*264	*16	*247	*22
Other animals	...	...	...	...	...	...

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses and nonresponse.

Table 6. Freshwater Anglers, Trips, Days of Fishing, and Type of Water Fished: 2001

(Population 16 years old and older. Numbers in thousands)

Anglers, trips, and days of fishing	Activity in Arizona					
	Total, state residents and nonresidents		State residents		Nonresidents	
	Number	Percent	Number	Percent	Number	Percent
Total anglers	**419**	**100**	**351**	**84**	**68**	**16**
Total trips	**2,863**	**100**	**2,717**	**95**	**146**	**5**
Total days of fishing	**4,246**	**100**	**3,842**	**91**	**403**	**9**
Average days of fishing	10	(X)	11	(X)	6	(X)
ANGLERS						
Total, all types of water	**419**	**100**	**351**	**84**	**68**	**16**
Ponds, lakes or reservoirs	352	100	308	88	*44	*12
Rivers or streams	135	100	111	82	*24	*18
DAYS						
Total, all types of water	**4,246**	**100**	**3,842**	**91**	**403**	**9**
Ponds, lakes or reservoirs	3,316	100	3,118	94	*198	*6
Rivers or streams	851	100	755	89	*95	*11

* Estimate based on a small sample size. (X) Not applicable.

Note: Detail does not add to total because of multiple responses.

Table 7. **Freshwater Anglers and Days of Fishing in Arizona by Type of Fish: 2001**

(Population 16 years old and older. Numbers in thousands)

Anglers and days of fishing	Activity in Arizona					
	Total, state residents and nonresidents		State residents		Nonresidents	
	Number	Percent	Number	Percent	Number	Percent
ANGLERS						
Total, all types of fish	**419**	**100**	**351**	**84**	**68**	**16**
Crappie	*43	*100	*42	*96	...	...
Panfish	50	100	50	100	...	...
White bass, striped bass, striped bass hybrids	69	100	57	82	...	...
Black bass	148	100	138	93	...	...
Catfish, bullheads	105	100	96	92	...	...
Walleye, sauger	...	...	...	...	...	...
Northern pike, pickerel, muskie, muskie hybrids	...	...	...	...	...	...
Steelhead	...	...	...	...	...	...
Trout	219	100	191	87	*28	*13
Salmon	...	...	...	...	...	...
Anything[1]	85	100	68	80	...	...
Other freshwater fish	...	...	...	...	...	...
DAYS						
Total, all types of fish	**4,246**	**100**	**3,842**	**91**	**403**	**9**
Crappie	*287	*100	*278	*97	...	...
Panfish	308	100	308	100	...	...
White bass, striped bass, striped bass hybrids	692	100	602	87	...	...
Black bass	1,372	100	1,333	97	...	...
Catfish, bullheads	772	100	750	97	...	...
Walleye, sauger	...	...	...	...	...	...
Northern pike, pickerel, muskie, muskie hybrids	...	...	...	...	...	...
Steelhead	...	...	...	...	...	...
Trout	1,661	100	1,473	89	*188	*11
Salmon	...	...	...	...	...	...
Anything[1]	741	100	624	84	...	...
Other freshwater fish	...	...	...	...	...	...

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

[1] Respondent fished for no specific species and identified "Anything" from a list of categories of fish.

Note: Detail does not add to total because of multiple responses.

Table 8. **Great Lakes Anglers, Trips, and Days of Fishing in Arizona: 2001**

This table does not apply to this state.

Table 9. **Great Lakes Anglers and Days of Fishing in Arizona by Type of Fish: 2001**

This table does not apply to this state.

Table 10. **Saltwater Anglers, Trips, and Days of Fishing in Arizona: 2001**

This table does not apply to this state.

Table 11. **Saltwater Anglers and Days of Fishing in Arizona by Type of Fish: 2001**

This table does not apply to this state.

Table 12. **Hunters, Trips, and Days of Hunting in Arizona by Type of Hunting: 2001**

(Population 16 years old and older. Numbers in thousands)

Hunters, trips, and days of hunting	Activity in Arizona					
	Total, state residents and nonresidents		State residents		Nonresidents	
	Number	Percent	Number	Percent	Number	Percent
HUNTERS						
Total, all hunting	**148**	**100**	**119**	**81**	***28**	***19**
Big game	81	100	76	94	...	...
Small game	72	100	65	90	...	...
Migratory bird	62	100	*41	*66	...	...
Other animals	...	...	...	...	...	...
TRIPS						
Total, all hunting	**1,142**	**100**	**1,076**	**94**	***66**	***6**
Big game	347	100	342	99	...	...
Small game	442	100	412	93	...	...
Migratory bird	272	100	*243	*89	...	...
Other animals	...	...	...	...	...	...
DAYS						
Total, all hunting	**1,694**	**100**	**1,546**	**91**	***148**	***9**
Big game	860	100	844	98	...	...
Small game	645	100	578	90	...	...
Migratory bird	335	100	*259	*78	...	...
Other animals	...	...	...	...	...	...

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses.

Table 13. **Hunters and Days of Hunting in Arizona by Type of Game: 2001**

(Population 16 years old and older. Numbers in thousands)

Type of game	Hunters, state residents and nonresidents		Days of hunting	
	Number	Percent	Number	Percent
Total, all types of game	**148**	**100**	**1,694**	**100**
Big game, total	**81**	**55**	**860**	**51**
Deer	63	42	556	33
Elk	*33	*23	*268	*16
Bear	...	...	...	...
Wild turkey	...	...	...	...
Other big game	...	...	...	...
Small game, total	**72**	**49**	**645**	**38**
Rabbit, hare	*21	*14	*220	*13
Quail	59	40	544	32
Grouse/prairie chicken	...	...	...	...
Squirrel	...	...	...	...
Pheasant	...	...	...	...
Other small game	...	...	...	...
Migratory birds, total	**62**	**42**	**335**	**20**
Geese	...	...	...	...
Duck	...	...	...	...
Dove	*50	*34	*248	*15
Other migratory bird	...	...	...	...
Other animals, total [1]	**...**	**...**	**...**	**...**

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

[1] Includes groundhog, raccoon, fox, coyote, crow, prairie dog, etc.

Note: Detail does not add to total because of multiple responses.

Table 14. **Hunters and Days of Hunting in Arizona by Type of Land: 2001**

(Population 16 years old and older. Numbers in thousands)

Hunters and days of hunting	Total, state residents and nonresidents		State residents		Nonresidents	
	Number	Percent	Number	Percent	Number	Percent
HUNTERS						
Total, all types of land	**148**	**100**	**119**	**100**	***28**	***100**
Public land, total	**121**	**82**	**110**	**92**	**...**	**...**
Public land only	99	67	89	74	...	...
Public and private land	*23	*15	*21	*18	...	...
Private land, total	***47**	***32**	***29**	***24**	**...**	**...**
Private land only	...	...	...	...	...	...
Private and public land	*23	*15	*21	*18	...	...
DAYS						
Total, all types of land	**1,694**	**100**	**1,546**	**100**	***148**	***100**
Public land[1]	1,414	83	1,366	88	...	...
Private land[2]	*411	*24	*346	*22	...	...

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

[1] Days of hunting on public land includes both days spent solely on public land and those spent on public and private land.
[2] Days of hunting on private land includes both days spent solely on private land and those spent on private and public land.

Note: Detail does not add to total because of multiple responses and nonresponse.

Table 15. **Selected Characteristics of Arizona Resident Anglers and Hunters: 2001**

(State population 16 years old and older. Numbers in thousands)

Characteristic	Population		Sportspersons (fished or hunted)			Anglers			Hunters		
	Number	Percent	Number	Percent who participated	Percent of sportspersons	Number	Percent who participated	Percent of anglers	Number	Percent who participated	Percent of hunters
Total persons	**3,700**	**100**	**437**	**12**	**100**	**394**	**11**	**100**	**124**	**3**	**100**
Population Density of Residence											
Urban	3,293	89	374	11	85	339	10	86	97	3	78
Rural	407	11	64	16	15	55	14	14	*27	*7	*22
Population Size of Residence											
Metropolitan statistical area (MSA)	3,146	85	355	11	81	322	10	82	95	3	76
1,000,000 or more	2,288	62	277	12	63	252	11	64	70	3	57
250,000 to 999,999	660	18	65	10	15	*55	*8	*14	*21	*3	*17
50,000 to 249,999	199	5	...	...	...	...	...	...	...	...	...
Outside MSA	554	15	82	15	19	72	13	18	*29	*5	*24
Sex											
Male	1,817	49	326	18	75	286	16	73	111	6	90
Female	1,884	51	111	6	25	108	6	27	*13	*1	*10
Age											
16 to 17 years	139	4	...	...	...	...	...	...	...	...	...
18 to 24 years	413	11	*44	*11	*10	*44	*11	*11	...	...	...
25 to 34 years	670	18	72	11	16	67	10	17	*17	*2	*13
35 to 44 years	726	20	116	16	27	96	13	24	*40	*5	*32
45 to 54 years	611	17	79	13	18	70	11	18	*30	*5	*24
55 to 64 years	470	13	65	14	15	60	13	15	*17	*4	*14
65 years and older	672	18	*46	*7	*10	*43	*6	*11	...	...	...
Ethnicity											
Hispanic	791	21	56	7	13	55	7	14	*13	*2	*11
Non-Hispanic	2,909	79	381	13	87	339	12	86	110	4	89
Race											
White	3,417	92	415	12	95	372	11	94	122	4	99
Black	109	3	...	...	...	...	...	...	...	...	...
All others	175	5	...	...	...	...	...	...	...	...	...
Annual Household Income											
Under $10,000	151	4	...	...	...	...	...	...	...	...	...
$10,000 to $19,999	302	8	*26	*9	*6	*26	*9	*7	...	...	...
$20,000 to $29,999	470	13	*29	*6	*7	*22	*5	*6	...	...	...
$30,000 to $39,999	446	12	67	15	15	61	14	16	*17	*4	*14
$40,000 to $49,999	296	8	*51	*17	*12	*48	*16	*12	...	...	...
$50,000 to $74,999	554	15	79	14	18	70	13	18	*26	*5	*21
$75,000 to $99,999	320	9	69	22	16	59	19	15	*16	*5	*13
$100,000 or more	269	7	51	19	12	50	19	13	...	...	...
Not reported	893	24	59	7	14	52	6	13	*21	*2	*17
Education											
11 years or less	563	15	*35	*6	*8	*30	*5	*8	...	...	...
12 years	1,133	31	133	12	30	117	10	30	48	4	39
1 to 3 years college	1,064	29	168	16	38	153	14	39	*44	*4	*35
4 years college or more	941	25	102	11	23	94	10	24	*24	*3	*20

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses. Percent who participated shows the percent of each row's population who participated in the activity named by the column (the percent of those living in urban areas who fished, etc.). Remaining percent columns show the percent of each column's participants who are described by the row heading (the percent of anglers who lived in urban areas, etc.).

Table 16. Summary of Expenditures in Arizona by U.S. Residents for Fishing and Hunting: 2001

(Population 16 years old and older)

Expenditure item	Amount (thousands of dollars)	Spenders (thousands)	Average per spender (dollars)	Average per sportsperson (dollars)
FISHING AND HUNTING				
Total	**799,006**	**528**	**1,515**	**1,457**
Food and lodging	102,410	399	256	211
Transportation	61,358	405	151	126
Other trip costs[1]	43,592	342	127	90
Equipment (fishing, hunting)	112,981	312	362	218
Auxiliary equipment[2]	46,448	149	312	91
Special equipment[3]	*396,781	*43	*9,273	*650
Magazines and books	3,968	105	38	8
Membership dues and contributions	15,244	61	251	30
Other[4]	16,224	331	49	32
FISHING				
Total	**336,293**	**418**	**805**	**680**
Food and lodging	68,764	346	199	164
Transportation	39,871	344	116	95
Other trip costs[1]	33,574	327	103	80
Fishing equipment	48,655	252	193	114
Auxiliary equipment[2]	7,283	57	128	15
Special equipment[3]	*125,585	*22	*5,752	*182
Magazines and books	*1,206	*33	*36	*3
Membership dues and contributions	...	...	...	...
Other[4]	10,185	270	38	24
HUNTING				
Total	**211,506**	**169**	**1,249**	**1,380**
Food and lodging	33,646	116	290	228
Transportation	21,487	123	175	146
Other trip costs[1]	*10,018	*42	*241	*68
Hunting equipment	61,309	102	600	372
Auxiliary equipment[2]	15,357	44	350	100
Special equipment[3]	...	...	...	...
Magazines and books	*620	*19	*33	*4
Membership dues and contributions	*10,424	*28	*377	*68
Other[4]	9,832	118	83	64
UNSPECIFIED[5]				
Total	**251,984**	**124**	**2,027**	**450**
Auxiliary equipment[2]	23,808	75	318	47
Special equipment[3]	*222,383	*18	*12,149	*392
Magazines and books	*2,142	*54	*40	*4
Membership dues and contributions	*3,651	*24	*153	*7

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

[1] Includes boating costs, equipment rental, guide fees, access fees, heating and cooking fuel, and ice and bait (for fishing only).
[2] Includes tents, special clothing, etc.
[3] Includes boats, campers, 4x4 vehicles, cabins, etc.
[4] Includes land leasing and ownership, licenses, stamps, tags, and permits.
[5] Respondent could not specify whether expenditure was primarily for either fishing or hunting.

Note: Detail does not add to total because of multiple responses and nonresponse. See Tables 19-20 for a detailed listing of expenditure items.

Table 17. Summary of Fishing Trip and Equipment Expenditures in Arizona by U.S. Residents, by Type of Fishing: 2001

(Population 16 years old and older)

Expenditure item	Amount (thousands of dollars)	Spenders (thousands)	Average per spender (dollars)	Average per angler (dollars)
ALL FISHING				
Total	**323,733**	**398**	**813**	**651**
Food and lodging	68,764	346	199	164
Transportation	39,871	344	116	95
Other trip costs	33,574	327	103	80
Equipment	181,524	273	666	312
ALL FRESHWATER				
Total	**194,287**	**390**	**498**	**462**
Food and lodging	68,764	346	199	164
Transportation	39,871	344	116	95
Other trip costs	33,574	327	103	80
Equipment	52,078	238	219	123
FRESHWATER, EXCEPT GREAT LAKES				
Total	**194,134**	**390**	**497**	**462**
Food and lodging	68,764	346	199	164
Transportation	39,871	344	116	95
Other trip costs	33,574	327	103	80
Equipment	51,925	238	219	123
GREAT LAKES				
Total	...	...	...	...
Food and lodging	...	...	...	...
Transportation	...	...	...	...
Other trip costs	...	...	...	...
Equipment	...	...	...	...
SALTWATER				
Total	...	...	...	...
Food and lodging	...	...	...	...
Transportation	...	...	...	...
Other trip costs	...	...	...	...
Equipment	...	...	...	...

... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses and nonresponse. See Table 19 for detailed listing of expenditure items.

Table 18. Summary of Hunting Trip and Equipment Expenditures in Arizona by U.S. Residents, by Type of Hunting: 2001

(Population 16 years old and older)

Expenditure item	Amount (thousands of dollars)	Spenders (thousands)	Average per spender (dollars)	Average per hunter (dollars)
ALL HUNTING				
Total	**190,630**	**147**	**1,301**	**1,245**
Food and lodging	33,646	116	290	228
Transportation	21,487	123	175	146
Other trip costs	*10,018	*42	*241	*68
Equipment	125,478	108	1,166	803
BIG GAME				
Total	**121,135**	**90**	**1,341**	**1,440**
Food and lodging	19,552	72	270	242
Transportation	10,627	74	143	132
Other trip costs	*9,704	*35	*280	*120
Equipment	81,252	58	1,392	946
SMALL GAME				
Total	**35,819**	**75**	**478**	**571**
Food and lodging	9,109	58	156	212
Transportation	7,211	61	118	168
Other trip costs	...	...	...	...
Equipment	*19,232	*48	*398	*186
MIGRATORY BIRD				
Total	***15,095**	***47**	***323**	***388**
Food and lodging	*3,985	*35	*112	*168
Transportation	*3,099	*37	*84	*131
Other trip costs	...	...	...	...
Equipment	*7,965	*27	*298	*87
OTHER ANIMALS				
Total	...	...	...	...
Food and lodging	...	...	...	...
Transportation	...	...	...	...
Other trip costs	...	...	...	...
Equipment	...	...	...	...

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses and nonresponse. See Table 20 for detailed listing of expenditure items.

Table 19. **Expenditures in Arizona by U.S. Residents for Fishing: 2001**

(Population 16 years old and older)

Expenditure item	Expenditures		Spenders		
	Amount (thousands of dollars)	Average per angler (dollars)	Number (thousands)	Percent of anglers	Average per spender (dollars)
Total, all items	**336,293**	**680**	**418**	**100**	**805**
TRIP-RELATED EXPENDITURES					
Total trip-related	**142,209**	**339**	**375**	**89**	**379**
Food and lodging, total	**68,764**	**164**	**346**	**82**	**199**
Food	48,580	116	335	80	145
Lodging	20,183	48	131	31	154
Transportation	39,871	95	344	82	116
Other trip costs, total	**33,574**	**80**	**327**	**78**	**103**
Privilege and other fees[1]	13,195	31	150	36	88
Boating costs[2]	9,186	22	85	20	108
Bait	6,057	14	264	63	23
Ice	3,493	8	213	51	16
Heating and cooking fuel	1,642	4	89	21	18
EQUIPMENT AND OTHER EXPENDITURES PRIMARILY FOR FISHING					
Fishing equipment, total	**48,655**	**114**	**252**	**60**	**193**
Reels, rods, and rod making components	18,837	44	122	29	154
Lines, hooks, sinkers, etc	8,564	20	197	47	43
Artificial lures and flies	14,671	34	171	41	86
Creels, stringers, fish bags, landing nets, and gaff hooks	*1,072	*3	*44	*10	*24
Minnow seines, traps, and bait containers	...	...	...	...	...
Other fishing equipment[3]	5,342	13	63	15	85
Auxiliary equipment[4]	7,283	15	57	14	128
Special equipment[5]	*125,585	*182	*22	*5	*5,752
Other fishing costs[6]	12,560	29	282	67	44

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

[1] Includes boat or equipment rental and fees for guides, pack trip (party and charter boats, etc.), public land use, and private land use.
[2] Includes boat launching, mooring, storage, maintenance, insurance, pumpout fees and fuel.
[3] Includes electronic fishing devices (depth finders, fish finders, etc.), tackle boxes, ice fishing equipment, and other fishing equipment.
[4] Includes tents, special fishing clothing, etc.
[5] Includes boats, campers, 4x4 vehicles, cabins, etc.
[6] Includes magazines and books, membership dues and contributions, land leasing and ownership, licenses, stamps, tags, and permits.

Note: Detail does not add to total because of multiple responses and nonresponse. Percent of anglers may be greater than 100 because spenders who did not fish in this state are included.

Table 20. **Expenditures in Arizona by U.S. Residents for Hunting: 2001**

(Population 16 years old and older)

Expenditure item	Expenditures		Spenders		
	Amount (thousands of dollars)	Average per hunter (dollars)	Number (thousands)	Percent of hunters	Average per spender (dollars)
Total, all items	**211,506**	**1,380**	**169**	**115**	**1,249**
TRIP-RELATED EXPENDITURES					
Total trip-related	**65,151**	**442**	**129**	**88**	**505**
Food and lodging, total	**33,646**	**228**	**116**	**79**	**290**
Food	28,080	190	116	79	242
Lodging	*5,566	*38	*20	*14	*279
Transportation	21,487	146	123	83	175
Other trip costs, total	***10,018**	***68**	***42**	***28**	***241**
Privilege and other fees[1]	...	...	...	...	...
Boating costs	...	...	...	...	...
Heating and cooking fuel	*835	*6	*40	*27	*21
EQUIPMENT AND OTHER EXPENDITURES PRIMARILY FOR HUNTING					
Hunting equipment, total	**61,309**	**372**	**102**	**69**	**600**
Guns and rifles	*29,214	*170	*33	*22	*885
Ammunition	5,609	38	70	48	80
Other hunting equipment[2]	26,486	164	56	38	469
Auxiliary equipment[3]	15,357	100	44	30	350
Special equipment[4]	...	...	...	...	...
Other hunting costs[5]	20,876	135	128	87	163

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

[1] Includes guide fees, pack trip or package fees, public and private land use access fees, and rental of equipment such as boats and hunting or camping equipment.

[2] Includes bows, arrows, archery equipment, telescopic sights, decoys and game calls, handloading equipment and components, hunting dogs and associated costs, hunting knives, and other hunting equipment.

[3] Includes tents, special hunting clothing, etc.

[4] Includes boats, campers, 4x4 vehicles, cabins, etc.

[5] Includes magazines and books, membership dues and contributions, land leasing and ownership, licenses, stamps, and permits.

Note: Detail does not add to total because of multiple responses and nonresponse. Percent of hunters may be greater than 100 percent because spenders who did not hunt in this state are included.

Table 21. Trip and Equipment Expenditures in Arizona for Fishing and Hunting by Arizona Residents and Nonresidents: 2001

(Population 16 years old and older)

Equipment item	Amount (thousands of dollars)	Spenders (thousands)	Average per spender (dollars)	Average per sportsperson (dollars)
STATE RESIDENTS AND NONRESIDENTS				
Trip and equipment expenditures for fishing and hunting, total	**763,570**	**478**	**1,597**	**1,379**
Trip and equipment expenditures for fishing, total	**323,733**	**398**	**813**	**651**
Food and lodging	68,764	346	199	164
Transportation	39,871	344	116	95
Boating costs[1]	9,186	85	108	22
Other trip costs[2]	24,388	321	76	58
Equipment	181,524	273	666	312
Trip and equipment expenditures for hunting, total	**190,630**	**147**	**1,301**	**1,245**
Food and lodging	33,646	116	290	228
Transportation	21,487	123	175	146
Boating costs[1]	...	...	...	...
Other trip costs[2]	*10,018	*42	*241	*68
Equipment	125,478	108	1,166	803
Unspecified equipment[3]	**249,208**	**95**	**2,621**	**439**
STATE RESIDENTS				
Trip and equipment expenditures for fishing and hunting, total	**694,352**	**391**	**1,774**	**1,547**
Trip and equipment expenditures for fishing, total	**275,528**	**341**	**808**	**641**
Food and lodging	50,924	294	173	145
Transportation	29,456	296	100	84
Boating costs[1]	6,480	73	88	18
Other trip costs[2]	14,980	275	55	43
Equipment	173,688	254	683	351
Trip and equipment expenditures for hunting, total	**170,636**	**118**	**1,450**	**1,422**
Food and lodging	29,774	105	282	250
Transportation	20,286	110	185	170
Boating costs[1]	...	...	...	...
Other trip costs[2]	*1,245	*40	*31	*10
Equipment	119,332	93	1,290	992
Unspecified equipment[3]	**248,188**	**89**	**2,779**	**541**
NONRESIDENTS				
Trip and equipment expenditures for fishing and hunting, total	**69,218**	**87**	**798**	**671**
Trip and equipment expenditures for fishing, total	**48,205**	**58**	**837**	**701**
Food and lodging	*17,840	*51	*347	*262
Transportation	*10,415	*48	*216	*153
Boating costs[1]	...	...	...	...
Other trip costs[2]	*9,408	*47	*202	*138
Equipment	*7,836	*18	*428	*108
Trip and equipment expenditures for hunting, total	***19,994**	***29**	***693**	***493**
Food and lodging	...	...	...	...
Transportation	...	...	...	...
Boating costs[1]	...	...	...	...
Other trip costs[2]	...	...	...	...
Equipment	...	...	...	...
Unspecified equipment[3]	**...**	**...**	**...**	**...**

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

[1] Includes boat launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.
[2] Includes equipment rental, guide and access fees, ice and bait for fishing, and heating and cooking oil.
[3] Respondent could not specify whether item was for fishing or for hunting.

Note: Detail does not add to total because of multiple responses and nonresponse.

Table 22. Summary of Expenditures by Arizona Residents in the United States for Fishing and Hunting: 2001

(State population 16 years old and older)

Expenditure item	Amount (thousands of dollars)	Spenders (thousands)	Average per spender (dollars)	Average per sportsperson (dollars)
FISHING AND HUNTING				
Total	**802,249**	**423**	**1,898**	**1,835**
Food and lodging	107,349	378	284	246
Transportation	80,377	375	214	184
Other trip costs[1]	33,661	325	104	77
Equipment (fishing, hunting)	109,475	300	365	250
Auxiliary equipment[2]	46,837	149	315	107
Special equipment[3]	*390,346	*39	*9,908	*893
Magazines and books	3,736	87	43	9
Membership dues and contributions	14,973	59	256	34
Other[4]	15,495	281	55	35
FISHING				
Total	**326,068**	**376**	**866**	**828**
Food and lodging	72,160	331	218	183
Transportation	39,288	325	121	100
Other trip costs[1]	25,764	310	83	65
Fishing equipment	49,067	251	195	125
Auxiliary equipment[2]	7,539	58	131	19
Special equipment[3]	*119,150	*18	*6,461	*302
Magazines and books	*1,152	*28	*41	*3
Membership dues and contributions	...	...	...	...
Other[4]	10,759	243	44	27
HUNTING				
Total	**225,651**	**121**	**1,865**	**1,821**
Food and lodging	35,189	110	319	284
Transportation	41,089	113	365	332
Other trip costs[1]	*7,897	*41	*191	*64
Hunting equipment	57,422	91	629	463
Auxiliary equipment[2]	15,696	45	352	127
Special equipment[3]	...	...	...	...
Magazines and books	*584	*18	*33	*5
Membership dues and contributions	*10,326	*26	*399	*83
Other[4]	8,638	92	94	70
UNSPECIFIED[5]				
Total	**251,446**	**107**	**2,354**	**575**
Auxiliary equipment[2]	23,603	75	314	54
Special equipment[3]	*222,383	*18	*12,149	*509
Magazines and books	*2,000	*44	*45	*5
Membership dues and contributions	...	...	...	...

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

[1] Includes boating costs, equipment rental, guide fees, access fees, heating and cooking fuel, and ice and bait (for fishing only).
[2] Includes tents, special clothing, etc.
[3] Includes boats, campers, 4x4 vehicles, cabins, etc.
[4] Includes land leasing and ownership, licenses, stamps, tags, and permits.
[5] Respondent could not specify whether expenditure was primarily for either fishing or hunting.

Note: Detail does not add to total because of multiple responses and nonresponse. See Tables 19-20 for a detailed listing of expenditure items.

Table 23. Summary of Expenditures by Arizona Residents in State and Out of State for Fishing and Hunting: 2001

(State population 16 years old and older)

Expenditure item	Amount (thousands of dollars)	Spenders (thousands)	Average per spender (dollars)	Average per sportsperson (dollars)
IN ARIZONA				
Expenditures for fishing and hunting, total	**726,577**	**396**	**1,832**	**1,851**
Trip-related expenditures	153,144	370	414	390
Equipment (fishing and hunting)	105,608	288	366	269
Auxiliary equipment[1]	45,258	139	326	115
Special equipment[2]	*390,342	*37	*10,418	*994
Other[3]	32,225	285	113	82
Expenditures for fishing, total	**287,240**	**349**	**823**	**818**
Trip-related expenditures	101,840	323	316	290
Fishing equipment	47,545	241	197	135
Auxiliary equipment[1]	6,996	54	130	20
Special equipment[2]	*119,147	*17	*7,216	*339
Other[3]	11,712	236	50	33
Expenditures for hunting, total	**189,550**	**118**	**1,611**	**1,589**
Trip-related expenditures	51,304	113	453	430
Hunting equipment	55,174	90	616	462
Auxiliary equipment[1]	*15,345	*41	*370	*129
Special equipment[2]	...	...	...	...
Other[3]	18,914	97	194	159
Unspecified expenditures for fishing and hunting, total[4]	**249,127**	**100**	**2,480**	**635**
Auxiliary equipment[1]	22,220	69	323	57
Special equipment[2]	*222,383	*18	*12,149	*566
Other[3]	*4,524	*39	*115	*12
OUT OF STATE				
Expenditures for fishing and hunting, total	**75,409**	**104**	**728**	**824**
Trip-related expenditures	68,242	78	879	746
Equipment (fishing and hunting)	*3,868	*32	*120	*42
Auxiliary equipment[1]	...	...	...	...
Special equipment[2]	...	...	...	...
Other[3]	*1,899	*50	*38	*21
Expenditures for fishing, total	**38,828**	**87**	**446**	**468**
Trip-related expenditures	35,372	69	512	426
Fishing equipment	...	...	...	...
Auxiliary equipment[1]	...	...	...	...
Special equipment[2]	...	...	...	...
Other[3]	*1,387	*47	*30	*17
Expenditures for hunting, total	***35,883**	***20**	***1,773**	***2,690**
Trip-related expenditures	...	...	...	...
Hunting equipment	...	...	...	...
Auxiliary equipment[1]	...	...	...	...
Special equipment[2]	...	...	...	...
Other[3]	...	...	...	...
Unspecified expenditures for fishing and hunting, total[4]	**...**	**...**	**...**	**...**
Auxiliary equipment[1]	...	...	...	...
Special equipment[2]	...	...	...	...
Other[3]	...	...	...	...

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

[1] Includes tents, special hunting or fishing clothing, etc.
[2] Includes boats, campers, 4x4 vehicles, cabins, etc.
[3] Includes magazines, books, membership dues, contributions, land leasing and ownership, stamps, tags, and licenses.
[4] Respondent could not specify whether expenditure was primarily for either fishing or hunting.

Note: Detail does not add to total because of multiple responses and nonresponse.

Table 24. U.S. Residents Participating in Wildlife Watching in Arizona: 2001

(Population 16 years old and older. Numbers in thousands)

Participants	Number	Percent
Total participants	**1,465**	**100**
Nonresidential (away from home)	638	44
Observe wildlife	601	41
Photograph wildlife	356	24
Feed wildlife	*97	*7
Residential (around the home)	1,063	73
Observe wildlife	791	54
Photograph wildlife	232	16
Feed wildlife	860	59
Visit public parks[1]	200	14
Maintain plantings or natural areas	238	16

* Estimate based on a small sample size. [1] Includes visits only to parks or publicly owned areas within 1 mile of home.

Note: Detail does not add to total because of multiple responses.

Table 25. Participants, Trips, and Days of Participation in Nonresidential (Away From Home) Wildlife-Watching Activities in Arizona: 2001

(Population 16 years old and older. Numbers in thousands)

Participants, trips, and days of participation	Activity in Arizona					
	Total, state residents and nonresidents		State residents		Nonresidents	
	Number	Percent	Number	Percent	Number	Percent
PARTICIPANTS						
Total participants	**638**	**100**	**271**	**100**	**367**	**100**
Observe wildlife	601	94	268	99	332	90
Photograph wildlife	356	56	116	43	240	65
Feed wildlife	*97	*15	*53	*20	*44	*12
TRIPS						
Total trips	2,337	100	1,786	100	550	100
Average days per trip	2	(X)	1	(X)	4	(X)
DAYS						
Total days	**4,584**	**100**	**2,464**	**100**	**2,120**	**100**
Observing wildlife	4,242	93	2,324	94	1,918	90
Photographing wildlife	1,697	37	727	29	971	46
Feeding wildlife	*1,026	*22	*684	*28	...	...
Average days per participant	**7**	**(X)**	**9**	**(X)**	**6**	**(X)**
Observing wildlife	7	(X)	9	(X)	6	(X)
Photographing wildlife	5	(X)	6	(X)	4	(X)
Feeding wildlife	*11	(X)	*13	(X)	...	(X)

* Estimate based on a small sample size. ... Sample size too small to report data reliably. (X) Not applicable.

Note: Detail does not add to total because of multiple responses and nonresponse.

Table 26. Nonresidential (Away From Home) Wildlife-Watching Participants Visiting Public Areas in Arizona and Type of Site Visited: 2001

(Population 16 years old and older. Numbers in thousands)

Participants and sites	Total, state residents and nonresidents		State residents		Nonresidents	
	Number	Percent	Number	Percent	Number	Percent
Total participants	**638**	**100**	**271**	**100**	**367**	**100**
Visited public areas	587	92	266	98	322	88
Did not visit public areas	*51	*8	...	...	*46	*12
Total, all sites	**638**	**100**	**271**	**100**	**367**	**100**
Oceanside	...	...	...	...	...	...
Lakes and streamsides	282	44	167	62	*115	*31
Marsh, wetland, swamp	*39	*6	...	...	*25	*7
Woodland	391	61	167	62	224	61
Brush-covered areas	470	74	167	62	303	83
Open field	389	61	149	55	240	65
Man-made area	136	21	*60	*22	*76	*21
Other	*109	*17	*36	*13	*72	*20

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses.

Table 27. Nonresidential (Away From Home) Wildlife-Watching Participants by Wildlife Observed, Photographed, or Fed in Arizona: 2001

(Population 16 years old and older. Numbers in thousands)

Wildlife observed, photographed, or fed	Total, state residents and nonresidents		State residents		Nonresidents	
	Number	Percent	Number	Percent	Number	Percent
Total all wildlife	**638**	**100**	**271**	**42**	**367**	**58**
Total birds	**593**	**100**	**247**	**42**	**345**	**58**
Songbirds	423	100	176	41	248	59
Birds of prey	517	100	222	43	295	57
Waterfowl	193	100	128	66	*65	*34
Shorebirds	117	100	89	76	*29	*24
Other birds	331	100	144	44	187	56
Total land mammals	**486**	**100**	**190**	**39**	**295**	**61**
Large land mammals	350	100	159	45	191	55
Small land mammals	437	100	167	38	271	62
Fish	89	100	*66	*74	...	...
Marine mammals	...	...	...	...	...	...
Other wildlife	210	100	108	51	*102	*49

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses.

Table 28. **Participation in Residential (Around the Home) Wildlife-Watching Activities in Arizona: 2001**

(State population 16 years old and older. Numbers in thousands)

Residential activity	Participants		Residential activity	Participants	
	Number	Percent		Number	Percent
Total residential participants	**1,063**	**100**	11 to 50 days	173	22
Observe wildlife	791	74	51 to 200 days	196	25
Visit public parks[1]	200	19	201 days or more	270	34
Photograph wildlife	232	22			
Feed wildlife	860	81	**Participants Visiting Public Parks[1]**		
Maintain natural areas	123	12	**Total, 1 day or more**	**200**	**100**
Maintain plantings	174	16	1 to 5 days	99	50
			6 to 10 days	*42	*21
Participants Observing Wildlife			11 days or more	*58	*29
Total, all wildlife	**791**	**100**			
Birds	771	98	**Participants Photographing Wildlife**		
Land mammals	496	63	**Total, 1 day or more**	**232**	**100**
Large mammals	180	23	1 to 3 days	92	39
Small mammals	483	61	4 to 10 days	*91	*39
Amphibians or reptiles	319	40	11 or more days	*47	*20
Insects or spiders	289	36			
Fish and other wildlife	105	13	**Participants Feeding Wildlife**		
			Total, all wildlife	**860**	**100**
Total, 1 day or more	**791**	**100**	Wild birds	846	98
1 to 10 days	125	16	Other wildlife	195	23

* Estimate based on a small sample size.

[1] Includes visits only to parks or publicly owned areas within 1 mile of home.

Note: Detail does not add to total because of multiple responses and nonresponse.

Table 29. **Arizona Residents Participating in Wildlife Watching in the United States: 2001**

(State population 16 years old and older. Numbers in thousands)

Participants	Number	Percent of participants	Percent of population
Total participants	**1,107**	**100**	**30**
Nonresidential (away from home)	329	30	9
Residential (around home)	1,063	96	29
Observe wildlife	791	71	21
Photograph wildlife	232	21	6
Feed wild birds or other wildlife	860	78	23
Maintain plantings or natural areas	238	22	6
Visit public parks	200	18	5

Note: Detail does not add to total because of multiple responses. The column showing percent of participants is based on total participants. The column showing percent of population is based on the state population 16 years old and older, including those who did not participate in wildlife watching.

Table 30. **Wild Bird Observers and Days of Observation in Arizona: 2001**

(Population 16 years old and older. Numbers in thousands)

Observers and days of observation	Total, state residents and nonresidents		State residents		Nonresidents	
	Number	Percent	Number	Percent	Number	Percent
OBSERVERS						
Total bird observers	**1,168**	**100**	**823**	**100**	**345**	**100**
Residential (around the home) observers	771	66	771	94	...	...
Nonresidential (away from home) observers	588	50	243	29	345	100
DAYS						
Total days observing birds	**118,318**	**100**	**116,524**	**100**	**1,794**	**100**
Residential (around the home)	114,409	97	114,409	98	...	...
Nonresidential (away from home)	3,909	3	2,114	2	1,794	100

... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses.

Table 31. **Wild Bird Observers in Arizona Who Can Identify Wild Birds by Sight or Sound, and Who Keep Birding Life Lists: 2001**

(State population 16 years old and older. Numbers in thousands)

Participants	Number	Percent
Total bird observers	**1,168**	**100**
Observers who can identify:		
1-20 bird species	853	73
21-40 bird species	193	17
41 or more species	*84	*7
Observers who keep birding life lists	*58	*5

* Estimate based on a small sample size.

Note: Detail does not add to total because of multiple responses and nonresponse.

Table 32. **Selected Characteristics of Arizona Residents Participating in Wildlife Watching: 2001**

(Population 16 years old and older. Numbers in thousands)

Characteristic	Population		Participants								
			Total			Nonresidential (away from home)			Residential (around the home)		
	Number	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent
Total persons	**3,700**	**100**	**1,107**	**30**	**100**	**329**	**9**	**100**	**1,063**	**29**	**100**
Population Density of Residence											
Urban	3,293	89	974	30	88	287	9	87	932	28	88
Rural	407	11	133	33	12	*41	*10	*13	130	32	12
Population Size of Residence											
Metropolitan statistical area (MSA)	3,146	85	899	29	81	253	8	77	864	27	81
1,000,000 or more	2,288	62	639	28	58	167	7	51	608	27	57
250,000 to 999,999	660	18	254	39	23	*86	*13	*26	249	38	23
50,000 to 249,999	199	5	...	...	...	...	...	...	...	...	...
Outside MSA	554	15	208	38	19	75	14	23	199	36	19
Sex											
Male	1,817	49	515	28	46	171	9	52	475	26	45
Female	1,884	51	593	31	54	158	8	48	587	31	55
Age											
16 to 17 years	139	4	...	...	...	...	...	...	...	...	...
18 to 24 years	413	11	*45	*11	*4	...	...	...	*36	*9	*3
25 to 34 years	670	18	117	17	11	*45	*7	*14	110	16	10
35 to 44 years	726	20	268	37	24	108	15	33	248	34	23
45 to 54 years	611	17	234	38	21	*60	*10	*18	232	38	22
55 to 64 years	470	13	173	37	16	*47	*10	*14	171	37	16
65 years and older	672	18	247	37	22	*40	*6	*12	242	36	23
Ethnicity											
Hispanic	791	21	141	18	13	...	...	...	139	18	13
Non-Hispanic	2,909	79	966	33	87	305	10	93	924	32	87
Race											
White	3,417	92	1,051	31	95	318	9	97	1,006	29	95
Black	109	3	...	...	...	...	...	...	...	...	...
All others	175	5	...	...	...	...	...	...	...	...	...
Annual Household Income											
Under $10,000	151	4	...	...	...	...	...	...	...	...	...
$10,000 to $19,999	302	8	*94	*31	*9	...	...	...	*94	*31	*9
$20,000 to $29,999	470	13	97	21	9	...	...	...	95	20	9
$30,000 to $39,999	446	12	151	34	14	*59	*13	*18	140	31	13
$40,000 to $49,999	296	8	*76	*26	*7	*43	*14	*13	*59	*20	*6
$50,000 to $74,999	554	15	209	38	19	*55	*10	*17	209	38	20
$75,000 to $99,999	320	9	121	38	11	*54	*17	*17	121	38	11
$100,000 or more	269	7	119	44	11	*38	*14	*12	112	42	11
Not reported	893	24	213	24	19	*38	*4	*11	206	23	19
Education											
11 years or less	563	15	107	19	10	...	...	...	*104	*18	*10
12 years	1,133	31	256	23	23	*63	*6	*19	246	22	23
1 to 3 years college	1,064	29	358	34	32	129	12	39	329	31	31
4 years college or more	941	25	387	41	35	116	12	35	384	41	36

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses and nonresponse. Percent who participated shows the percent of each row's population who participated in the activity named by the column (the percent of those living in urban areas who participated, etc.). Percent columns show the percent of each column's participants who are described by the row heading (the percent of those who participated who live in urban areas, etc.).

Table 33. **Expenditures in Arizona by U.S. Residents for Wildlife Watching: 2001**

(Population 16 years old and older)

Expenditure item	Expenditures (thousands of dollars)	Average per participant (dollars)	Spenders		
			Number (thousands)	Percent of wildlife-watching participants[1]	Average per spender (dollars)
Total, all items	**820,718**	**560**	**1,235**	**84**	**665**
TRIP EXPENDITURES					
Total trip-related	**304,677**	**478**	**609**	**95**	**500**
Food and lodging	193,511	303	560	88	345
Food	109,683	172	557	87	197
Lodging	83,828	131	339	53	247
Transportation	98,217	154	543	85	181
Other trip costs[2]	12,950	20	259	41	50
EQUIPMENT AND OTHER EXPENDITURES					
Total	**516,040**	**352**	**873**	**60**	**591**
Wildlife-watching equipment, total	**128,202**	**87**	**821**	**56**	**156**
Binoculars, spotting scopes	*8,824	*6	*61	*4	*145
Film and developing	17,404	12	297	20	59
Cameras, special lenses, videocameras, and other photographic equipment	48,989	33	109	7	451
Day packs, carrying cases, and special clothing	*4,498	*3	*61	*4	*73
Bird food	36,391	25	623	42	58
Food for other wildlife	*1,537	*1	*60	*4	*26
Nest boxes, bird houses, bird feeders, and bird baths	8,705	6	212	14	41
Other equipment (including field guides)	1,854	1	91	6	20
Auxiliary equipment[3]	20,470	14	110	7	187
Special equipment[4]	...	...	...	...	...
Magazines and books	3,942	3	138	9	29
Membership dues and contributions	12,728	9	100	7	128
Land leasing and ownership	...	...	...	...	...
Plantings	14,841	14	165	16	90

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

[1] Percent of wildlife-watching participants column for trip-related expenditures is based on nonresidential participants. For equipment and other expenditures, the percent of wildlife-watching participants column is based on total wildlife-watching participants.
[2] Includes equipment rental and fees for guides, pack trips, public land use and private land use, boat fuel, other boating costs, and heating and cooking fuel.
[3] Includes tents, tarps, frame packs and other backpacking equipment, other camping equipment, and other auxiliary equipment.
[4] Includes travel or tent trailers, off-the-road vehicles, pickups, campers or vans, motor homes, boats, and other special equipment.

Note: Detail does not add to total because of multiple responses and nonresponse.

Table 34. Trip and Equipment Expenditures in Arizona for Wildlife Watching by Residents and Nonresidents: 2001

(Population 16 years old and older)

Expenditure item	Amount (thousands of dollars)	Spenders (thousands)	Average per spender (dollars)	Average per participant (dollars)
STATE RESIDENTS AND NONRESIDENTS				
Total	**789,207**	**1,203**	**656**	**539**
Food and lodging	193,511	560	345	303
Transportation	98,217	543	181	154
Other trip costs[1]	12,950	259	50	20
Equipment[2]	484,530	830	584	331
STATE RESIDENTS				
Total	**563,539**	**809**	**697**	**513**
Food and lodging	48,476	226	214	179
Transportation	29,151	247	118	108
Other trip costs[1]	3,878	111	35	14
Equipment[2]	482,034	756	637	439
NONRESIDENTS				
Total	**225,668**	**394**	**572**	**615**
Food and lodging	145,035	334	434	395
Transportation	69,065	296	233	188
Other trip costs[1]	*9,071	*148	*61	*25
Equipment[2]	*2,496	*74	*34	*7

* Estimate based on a small sample size.

[1] Includes equipment rental and fees for guides, pack trips, public land use, private land use, boat fuel, other boating costs, and heating and cooking fuel.
[2] Includes wildlife watching, auxiliary and special equipment.

Note: Detail does not add to total because of multiple responses and nonresponse. See Table 33 for a detailed listing of expenditure items.

Table 35. **Expenditures in the United States by Arizona Residents for Wildlife Watching: 2001**

(Population 16 years old and older)

Expenditure item	Expenditures (thousands of dollars)	Average per participant (dollars)	Spenders		
			Number (thousands)	Percent of wildlife-watching participants[1]	Average per spender (dollars)
Total, all items	**771,105**	**696**	**871**	**79**	**886**
TRIP EXPENDITURES					
Total trip-related	**174,237**	**644**	**301**	**111**	**578**
Food and lodging	115,853	428	262	97	443
Food	68,040	251	259	96	263
Lodging	47,813	177	127	47	376
Transportation	50,145	185	276	102	181
Other trip costs[2]	8,239	30	132	49	62
EQUIPMENT AND OTHER EXPENDITURES					
Total	**596,869**	**539**	**817**	**74**	**730**
Wildlife-watching equipment, total	**131,651**	**119**	**759**	**69**	**174**
Binoculars, spotting scopes	*10,808	*10	*78	*7	*139
Film and developing	16,511	15	265	24	62
Cameras, special lenses, videocameras, and other photographic equipment	49,640	45	114	10	434
Day packs, carrying cases, and special clothing	*4,805	*4	*63	*6	*76
Bird food	36,552	33	592	53	62
Food for other wildlife	*2,640	*2	*70	*6	*38
Nest boxes, bird houses, bird feeders, and bird baths	9,234	8	207	19	45
Other equipment	*1,460	*1	*84	*8	*17
Auxiliary equipment[3]	22,508	20	121	11	187
Special equipment[4]	*353,597	*319	*30	*3	*11,699
Magazines and books	4,010	4	147	13	27
Membership dues and contributions	16,735	15	120	11	139
Land leasing and ownership	...	...	...	...	...
Plantings	14,841	14	165	16	90

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

[1] Percent of wildlife-watching participants column for trip-related expenditures is based on nonresidential participants. For equipment and other expenditures, the percent of wildlife-watching participants column is based on total wildlife-watching participants.
[2] Includes equipment rental and fees for guides, pack trips, public land use and private land use, boat fuel, other boating costs, and heating and cooking fuel.
[3] Includes tents, tarps, frame packs and other backpacking equipment, other camping equipment, and other auxiliary equipment.
[4] Includes travel or tent trailers, off-the-road vehicles, pickups, campers or vans, motor homes, boats, and other special equipment.

Note: Detail does not add to total because of multiple responses and nonresponse.

Table 36. Summary of Expenditures by Arizona Residents in State and Out of State for Wildlife Watching: 2001

(State population 16 years old and older)

Expenditure item	Amount (thousands of dollars)	Spenders (thousands)	Average per spender (dollars)	Average per participant (dollars)
IN ARIZONA				
Expenditures for wildlife watching, total	**594,530**	**840**	**708**	**537**
Trip-related expenditures	81,506	260	314	301
Wildlife-watching equipment	125,748	747	168	114
Auxiliary equipment	20,428	107	191	18
Special equipment	...	...	...	...
Other	16,151	194	83	15
OUT OF STATE				
Expenditures for wildlife watching, total	**175,225**	**156**	**1,124**	**158**
Trip-related expenditures	92,731	100	928	282
Wildlife-watching equipment	*5,307	*50	*106	*5
Auxiliary equipment	...	...	...	...
Special equipment	...	...	...	...
Other	*57,428	*32	*1,809	*52

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

Note: See Table 33 for detailed listing of expenditure items.

Table 37. **Participation of Arizona Resident Wildlife-Watching Participants in Fishing and Hunting: 2001**

(State population 16 years old and older. Numbers in thousands)

Participants	Total, nonresidential and residential		Wildlife-watching activity			
			Nonresidential (away from home)		Residential (around the home)	
	Number	Percent	Number	Percent	Number	Percent
Total participants	**1,107**	**100**	**329**	**100**	**1,063**	**100**
Wildlife-watching participants who:						
Did not fish or hunt	859	78	220	67	842	79
Fished or hunted	248	22	109	33	221	21
Fished	227	20	97	29	204	19
Hunted	72	7	*34	*10	67	53

* Estimate based on a small sample size.

Note: Detail does not add to total because of multiple responses and nonresponse.

Table 38. **Participation of Arizona Resident Sportspersons in Wildlife-Watching Activities: 2001**

(State population 16 years old and older. Numbers in thousands)

Sportspersons	Sportspersons		Anglers		Hunters	
	Number	Percent	Number	Percent	Number	Percent
Total Sportspersons	**437**	**100**	**394**	**100**	**124**	**100**
Sportspersons who:						
Did not engage in wildlife-watching activities	189	43	167	42	52	42
Engaged in wildlife-watching activities	248	57	227	58	72	58
Nonresidential (away from home)	109	25	97	25	*34	*27
Residential (around the home)	221	51	204	52	67	54

* Estimate based on a small sample size.

Note: Detail does not add to total because of multiple responses and nonresponse.

Table 39. **Participants in Wildlife-Associated Recreation by Participant's State of Residence: 2001**

(Population 16 years old and older. Numbers in thousands)

Participant's state of residence	Population	Total participants		Sportspersons		Wildlife-watching participants	
		Number	Percent of population	Number	Percent of population	Number	Percent of population
United States, total	**212,298**	**82,302**	**39**	**37,805**	**18**	**66,105**	**31**
Alabama	3,427	1,323	39	726	21	965	28
Alaska	454	320	70	205	45	241	53
Arizona	3,700	1,296	35	437	12	1,107	30
Arkansas	1,999	1,034	52	617	31	774	39
California	25,982	6,873	26	2,486	10	5,491	21
Colorado	3,215	1,518	47	679	21	1,213	38
Connecticut	2,536	999	39	332	13	885	35
Delaware	599	220	37	94	16	170	28
Florida	12,171	3,857	32	2,158	18	2,856	23
Georgia	6,096	1,932	32	1,136	19	1,326	22
Hawaii	916	195	21	114	12	126	14
Idaho	972	507	52	306	31	388	40
Illinois	9,244	3,154	34	1,507	16	2,498	27
Indiana	4,558	2,179	48	914	20	1,786	39
Iowa	2,201	1,206	55	580	26	977	44
Kansas	2,017	942	47	491	24	735	36
Kentucky	3,121	1,547	50	703	23	1,264	40
Louisiana	3,306	1,330	40	833	25	844	26
Maine	1,005	607	60	256	26	520	52
Maryland	4,078	1,546	38	571	14	1,311	32
Massachusetts	4,837	1,726	36	521	11	1,493	31
Michigan	7,587	2,950	39	1,325	17	2,424	32
Minnesota	3,688	2,388	65	1,437	39	1,993	54
Mississippi	2,111	851	40	533	25	579	27
Missouri	4,206	2,010	48	1,076	26	1,612	38
Montana	699	438	63	279	40	362	52
Nebraska	1,266	623	49	308	24	498	39
Nevada	1,454	439	30	194	13	334	23
New Hampshire	954	506	53	175	18	450	47
New Jersey	6,300	1,993	32	669	11	1,694	27
New Mexico	1,337	595	45	256	19	471	35
New York	14,201	3,987	28	1,492	11	3,522	25
North Carolina	5,918	2,330	39	982	17	1,884	32
North Dakota	483	228	47	170	35	135	28
Ohio	8,645	3,407	39	1,513	17	2,768	32
Oklahoma	2,587	1,308	51	730	28	1,042	40
Oregon	2,630	1,545	59	611	23	1,286	49
Pennsylvania	9,303	4,169	45	1,648	18	3,522	38
Rhode Island	765	280	37	96	13	242	32
South Carolina	3,080	1,375	45	674	22	1,079	35
South Dakota	559	326	58	176	31	251	45
Tennessee	4,317	2,109	49	903	21	1,706	40
Texas	15,445	4,515	29	2,745	18	3,088	20
Utah	1,554	736	47	468	30	572	37
Vermont	479	319	67	125	26	287	60
Virginia	5,471	2,535	46	970	18	2,168	40
Washington	4,516	2,537	56	932	21	2,234	49
West Virginia	1,447	694	48	353	24	517	36
Wisconsin	4,059	2,489	61	1,141	28	2,159	53
Wyoming	377	223	59	138	37	172	46

Note: Detail does not add to total because of multiple responses. U.S. totals include responses from participants residing in the District of Columbia, as described in the statistical accuracy appendix.

Table 40. **Participants in Wildlife-Associated Recreation by State Where Activity Took Place: 2001**

(Population 16 years old and older. Numbers in thousands)

State where activity took place	Total participants		Sportspersons		Wildlife-watching participants	
	Number	Percent	Number	Percent	Number	Percent
United States, total	**82,302**	**100**	**37,805**	**46**	**66,105**	**80**
Alabama	1,557	100	1,021	66	1,016	65
Alaska	632	100	457	72	420	67
Arizona	1,720	100	486	28	1,465	85
Arkansas	1,369	100	960	70	841	61
California	7,231	100	2,556	35	5,720	79
Colorado	2,138	100	1,077	50	1,552	73
Connecticut	1,151	100	356	31	967	84
Delaware	321	100	157	49	232	72
Florida	4,860	100	3,158	65	3,240	67
Georgia	2,198	100	1,236	56	1,494	68
Hawaii	324	100	151	46	220	68
Idaho	868	100	486	56	643	74
Illinois	3,390	100	1,366	40	2,627	77
Indiana	2,427	100	965	40	1,866	77
Iowa	1,334	100	645	48	1,022	77
Kansas	1,091	100	563	52	807	74
Kentucky	1,834	100	901	49	1,362	74
Louisiana	1,558	100	1,059	68	935	60
Maine	975	100	449	46	778	80
Maryland	1,911	100	752	39	1,524	80
Massachusetts	1,988	100	632	32	1,686	85
Michigan	3,481	100	1,659	48	2,666	77
Minnesota	2,915	100	1,733	59	2,155	74
Mississippi	1,017	100	720	71	631	62
Missouri	2,494	100	1,382	55	1,826	73
Montana	871	100	463	53	687	79
Nebraska	768	100	382	50	565	74
Nevada	657	100	193	29	543	83
New Hampshire	892	100	295	33	766	86
New Jersey	2,345	100	855	36	1,895	81
New Mexico	884	100	379	43	671	76
New York	4,620	100	1,760	38	3,885	84
North Carolina	2,882	100	1,386	48	2,168	75
North Dakota	322	100	259	81	190	59
Ohio	3,658	100	1,540	42	2,897	79
Oklahoma	1,529	100	838	55	1,131	74
Oregon	2,051	100	761	37	1,680	82
Pennsylvania	4,570	100	1,783	39	3,794	83
Rhode Island	399	100	181	45	298	75
South Carolina	1,666	100	922	55	1,186	71
South Dakota	518	100	349	67	358	69
Tennessee	2,671	100	1,062	40	2,084	78
Texas	4,949	100	2,857	58	3,240	65
Utah	1,091	100	585	54	806	74
Vermont	569	100	211	37	496	87
Virginia	3,001	100	1,137	38	2,460	82
Washington	2,970	100	1,024	34	2,496	84
West Virginia	843	100	444	53	605	72
Wisconsin	3,165	100	1,611	51	2,442	77
Wyoming	662	100	373	56	498	75

Note: Detail does not add to total because of multiple responses. U.S. totals include responses from participants residing in the District of Columbia, as described in the statistical accuracy appendix.

Table 41. **Anglers and Hunters by State Where Fishing or Hunting Took Place: 2001**

(Population 16 years old and older. Numbers in thousands)

State where fishing or hunting took place	Anglers						Hunters					
	Total anglers, residents and nonresidents		Residents		Nonresidents		Total hunters, residents and nonresidents		Residents		Nonresidents	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
United States, total	**34,071**	**100**	**31,218**	**92**	**7,880**	**23**	**13,034**	**100**	**12,377**	**95**	**2,027**	**16**
Alabama	851	100	610	72	241	28	423	100	307	73	116	27
Alaska	421	100	183	43	239	57	93	100	72	77	*21	*23
Arizona	419	100	351	84	68	16	148	100	119	81	*28	*19
Arkansas	782	100	539	69	243	31	431	100	303	70	128	30
California	2,444	100	2,288	94	156	6	274	100	261	95	*12	*5
Colorado	915	100	560	61	357	39	281	100	159	57	121	43
Connecticut	346	100	271	78	75	22	45	100	*35	*77	...	...
Delaware	148	100	71	47	*78	*53	16	100	13	81	...	...
Florida	3,104	100	2,057	66	1,047	34	226	100	191	84	*35	*16
Georgia	1,086	100	947	87	139	13	417	100	355	85	*62	*15
Hawaii	150	100	109	73	*41	*27	17	100	17	100	...	...
Idaho	416	100	251	60	165	40	197	100	150	76	47	24
Illinois	1,237	100	1,157	94	80	6	310	100	246	79	*64	*21
Indiana	874	100	784	90	90	10	290	100	269	93	...	...
Iowa	542	100	471	87	70	13	243	100	195	80	*48	*20
Kansas	404	100	357	88	*47	*12	291	100	189	65	103	35
Kentucky	780	100	590	76	190	24	323	100	269	83	*54	*17
Louisiana	970	100	757	78	213	22	333	100	295	89	*38	*11
Maine	376	100	212	56	165	44	164	100	123	75	41	25
Maryland	701	100	457	65	243	35	145	100	115	80	*30	*20
Massachusetts	615	100	425	69	191	31	66	100	64	97	...	...
Michigan	1,354	100	1,002	74	352	26	754	100	705	94	*48	*6
Minnesota	1,624	100	1,293	80	331	20	597	100	568	95	*29	*5
Mississippi	586	100	450	77	136	23	357	100	245	69	111	31
Missouri	1,215	100	942	78	272	22	489	100	405	83	84	17
Montana	349	100	212	61	138	39	229	100	170	74	59	26
Nebraska	296	100	241	81	55	19	173	100	124	72	*49	*28
Nevada	172	100	119	69	*53	*31	47	100	42	90	...	...
New Hampshire	267	100	147	55	119	45	78	100	52	67	*26	*33
New Jersey	806	100	531	66	275	34	135	100	108	80	...	...
New Mexico	314	100	197	63	*116	*37	130	100	105	80	*26	*20
New York	1,550	100	1,243	80	307	20	714	100	635	89	79	11
North Carolina	1,287	100	831	65	456	35	295	100	272	92	*23	*8
North Dakota	179	100	119	67	*59	*33	139	100	87	63	*52	*37
Ohio	1,371	100	1,225	89	146	11	490	100	452	92	*38	*8
Oklahoma	774	100	648	84	126	16	261	100	241	92	*20	*8
Oregon	687	100	513	75	174	25	248	100	234	94	*15	*6
Pennsylvania	1,266	100	1,032	82	234	18	1,000	100	858	86	142	14
Rhode Island	179	100	86	48	93	52	*9	*100	*7	*83	...	...
South Carolina	812	100	571	70	241	30	265	100	221	83	*44	*17
South Dakota	214	100	140	65	75	35	209	100	90	43	119	57
Tennessee	903	100	709	79	194	21	359	100	288	80	71	20
Texas	2,372	100	2,151	91	221	9	1,201	100	1,101	92	100	8
Utah	517	100	388	75	129	25	198	100	177	89	*22	*11
Vermont	171	100	96	56	75	44	100	100	74	74	*26	*26
Virginia	1,010	100	761	75	248	25	355	100	279	79	*75	*21
Washington	938	100	808	86	130	14	227	100	210	92	...	...
West Virginia	318	100	250	79	*67	*21	284	100	229	81	*55	*19
Wisconsin	1,412	100	941	67	471	33	660	100	588	89	*72	*11
Wyoming	293	100	117	40	176	60	133	100	65	49	68	51

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses. U.S. totals include responses from participants residing in the District of Columbia, as described in the statistical accuracy appendix.

Appendix A

Appendix A. Definitions

Annual household income—Total 2001 income of household members before taxes and other deductions.

Auxiliary equipment—Equipment owned primarily for wildlife-associated recreation. These include for the sportspersons section—camping bags, packs, duffel bags and tents, binoculars, field glasses, telescopes, special fishing and hunting clothing, foul weather gear, boots, waders, and processing and taxidermy costs; and for the wildlife-watching section—tents, tarps, frame packs, backpacking equipment and other camping equipment.

Big game—Antelope, bear, deer, elk, moose, wild turkey, and similar large animals which are hunted.

Birding life list—A tally of bird species seen during a birder's lifetime.

Census Divisions

East North Central
Illinois
Indiana
Michigan
Ohio
Wisconsin

East South Central
Alabama
Kentucky
Mississippi
Tennessee

Middle Atlantic
New Jersey
New York
Pennsylvania

Mountain
Arizona
Colorado
Idaho
Montana
Nevada
New Mexico
Utah
Wyoming

New England
Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

Pacific
Alaska
California
Hawaii
Oregon
Washington

South Atlantic
Delaware
District of Columbia
Florida
Georgia
Maryland
North Carolina
South Carolina
Virginia
West Virginia

West North Central
Kansas
Iowa
Minnesota
Missouri
Nebraska
North Dakota
South Dakota

West South Central
Arkansas
Louisiana
Oklahoma
Texas

Day—Any part of a day spent in a given activity. For example, if someone hunted 2 hours 1 day and 3 hours another day, it would be recorded as 2 days of hunting. If someone hunted 2 hours in the morning and 3 hours in the evening of the same day, it would be considered 1 day of hunting.

Education—The highest completed grade of school or year of college.

Expenditures—Money spent in 2001 for wildlife-related recreation trips in the United States and wildlife-related recreational equipment purchased in the United States. Expenditures include both money spent by participants for themselves and the value of gifts they received.

Federal land—Public land owned by the federal government such as National Forests and National Wildlife Refuges.

Fishing—The sport of catching or attempting to catch fish with a hook, line, bow and arrow, or spear; it also includes catching or gathering shellfish (clams, crabs, etc.); and the noncommercial seining or netting of fish, unless the fish are for use as bait. For example, seining for smelt is fishing, but seining for bait minnows is not included as fishing.

Fishing equipment—Items owned primarily for fishing. These items are listed in Table 19.

Freshwater—Reservoirs, lakes, ponds, and the nontidal portions of rivers and streams.

Great Lakes fishing—Fishing in Lakes Superior, Michigan, Huron, St. Clair, Erie, and Ontario, their connecting waters such as the St. Marys River system, Detroit River, St. Clair River, and the Niagara River, and the St. Lawrence River south of the bridge at Cornwall, New York. Great Lakes fishing includes fishing in tributaries of the Great Lakes for smelt, steelhead, and salmon.

Home—The starting point of a wildlife-related recreational trip. It may be a permanent residence or a temporary or seasonal residence such as a cabin.

Hunting—The sport of shooting or attempting to shoot wildlife with firearms or archery equipment.

Hunting equipment—Items owned primarily for hunting. These items are listed in Table 20.

Local land—Public land owned by local government such as county parks or municipal watersheds.

Maintain natural areas—To set aside one-quarter acre or more of natural environment such as wood lots or open fields for the primary purpose of benefiting wildlife.

Maintain plantings—To introduce or encourage the growth of food and cover plants for the primary purpose of benefiting wildlife.

Metropolitan statistical area (MSA)—Except in the New England States, an MSA is a county or group of contiguous counties containing at least one city of 50,000 or more inhabitants or twin cities (i.e., cities with contiguous boundaries and constituting, for general social and economic purposes, a single community) with a combined population of at least 50,000. Also included in an MSA are contiguous counties that are socially and economically integrated with the central city. In the New England States, an MSA consists of towns and cities instead of counties. Each MSA must include at least one central city.

Migratory birds—Birds that regularly migrate from one region or climate to another. The survey focuses on migratory birds which may be hunted, including bandtailed pigeons, coots, ducks, doves, gallinules, geese, rails, and woodcocks.

Multiple responses—The term used to reflect the fact that individuals or their characteristics fall into more than one reporting category. An example of a big game hunter who hunted for deer and elk demonstrates the effect of multiple responses. In this case, adding the number of deer hunters (1) and elk hunters (1) would over state the number of big game hunters (1) because deer and elk hunters are not mutually exclusive categories. In contrast, total participants is the sum of male and female participants, because male and female are mutually exclusive categories.

Nonresidential activity (away from home)—Trips or outings at least 1 mile from home for the primary purpose of observing, photographing, or feeding wildlife. Trips to zoos, circuses, aquariums, and museums are not included.

Nonresidents—Individuals who do not live in the state being reported. For example, a person living in Texas who watches whales in California is a nonresident participant in California.

Nonresponse—Nonresponse is a term used to reflect the fact that some survey respondents provide incomplete sets of information. For example, a survey respondent may have been unable to identify the primary type of hunting for which a gun was bought. Hunting expenditures will reflect the gun purchase, but it will not appear as spending for big game or any other type of hunting. Nonresponses result in reported totals that are greater than the sum of their parts.

Observe—To take special interest in or try to identify birds, fish, or other wildlife.

Other animals—Coyotes, crows, foxes, groundhogs, prairie dogs, raccoons, and similar animals that are often regarded as varmints or pests. Other animals may be classified as unprotected or nongame animals by the state in which they are hunted.

Participants—Individuals who engaged in fishing, hunting, or a wildlife-watching activity.

Primary purpose—The principal motivation for an activity, trip, or expenditure.

Public areas—Public lands owned by local, state, or federal governments.

Public land—Land that is owned by the local, state, or federal government.

Private land—Land that is owned by a private individual, group of individuals, or nongovernmental organization.

Residential activity (around the home)—Activity within 1 mile of home with a primary purpose: (1) closely observing or trying to identify birds or other wildlife, (2) photographing wildlife, (3) feeding birds or other wildlife, (4) maintaining natural areas of at least one-quarter acre primarily for the benefit to wildlife, (5) maintaining plantings (shrubs, agricultural crops, etc.) primarily for the benefit of wildlife, or (6) visiting public parks within 1 mile of home to observe, photograph, or feed wildlife.

Residents—Individuals who lived in the state being reported. For example, persons who live in California and watch whales in California are resident participants in California.

Rural—Respondent lived in a rural nonfarm, or rural farm area, as determined by Census.

Saltwater—Oceans, tidal bays and sounds, and the tidal portions of rivers and streams.

Screening interviews—The first survey contact with a household. Screening interviews with a household representative in each household to identify respondents who are eligible for indepth interviews. Screening interviews gather data about the individuals in the households, such as their age and sex. Screening interviews are discussed in the Survey Background and Method section of this report.

Small game—Grouse, partridge, pheasants, quail, rabbits, squirrels, and similar small animals and birds for which many states have small game seasons and bag limits.

Special equipment—Items of equipment that are owned primarily for wildlife-related recreation. These include for the sportsmen section bass boat and other types of motor boat; canoe and other types of nonmotor boat; boat motor, boat trailer/hitch, and other boat accessories; pickup, camper, van, travel or tent trailer, motor home, house trailer, RV, cabin; and trail bike, dune buggy, 4x4 vehicle, four-wheeler, and snowmobile. For the wildlife-watching section these include off-the-road vehicles such as snowmobiles, four-wheeler, 4x4 vehicle, trail bike, dune buggy, travel or tent trailer, motor home, pickup, camper, van,

house trailer, RV, boat and boat accessories, and cabin.

Spenders—Individuals who reported an expenditure value for fishing, hunting, or wildlife-watching activities or equipment.

Sportspersons—Individuals who engaged in fishing, hunting, or both.

State land—Public land owned by a state such as state parks or state wildlife management areas.

Trip—An outing involving fishing, hunting, or wildlife-watching activities. In the context of this survey, a trip may begin from an individual's principal residence or from another place, such as a vacation home or the home of a relative. A trip may last an hour, a day, or many days.

Type of fishing—Three types of fishing are reported: fishing in (1) freshwater except Great Lakes, (2) Great Lakes, and (3) saltwater.

Type of hunting—Four types of hunting are reported: hunting for (1) big game, (2) small game, (3) migratory bird, and (4) other animals.

Urban—Respondent lived in an urban area, as determined by the U.S. Census Bureau.

Wildlife—Animals such as birds, fish, insects, mammals, amphibians, and reptiles that are living in natural or wild environments. Wildlife does not include animals living in aquariums, zoos, and other artificial surroundings or domestic animals such as farm animals or pets.

Wildlife-associated recreation—Recreational fishing, hunting, or wildlife watching.

Wildlife-watching activity—An activity engaged in primarily for the purpose of feeding, photographing, or observing fish or other wildlife. In previous years, this was termed nonconsumptive activity. (See also residential and nonresidential activities.)

Wildlife-watching equipment—Items owned primarily for observing, photographing, or feeding wildlife. These items are listed in Table 33.

Appendix B

Appendix B. National and Regional 1991-2001 Comparisons

Appendix B provides national and regional trend information based on the 1991, 1996, and 2001 Surveys. Since all three surveys used similar methodologies, their published information is directly comparable.

Fishing and Hunting

Comparing national hunting and fishing estimates for the 1991, 1996, and 2001 Surveys found participation declined over that 10-year time period. In 1991 and 1996, the number of people who hunted and fished remained essentially unchanged. In 2001, the overall number of people who hunted and fished declined from their 1991/1996 levels. In 1991, there were 35.6 million anglers and 14.1 million hunters. In 1996, there were 35.2 million anglers and 14.0 million hunters. In 2001, there were 34.1 million anglers—a 4 percent drop from its 1991 level, and 13.0 million hunters—a 7 percent drop from 1991.

The amount of time people spent fishing and hunting fluctuated between 1991 and 2001. The number of days spent fishing rose 22 percent between 1991 and 1996 and then fell 11 percent between 1996 and 2001. Days of hunting followed a similar pattern. Between 1991 and 1996, hunting days increased 9 percent but then fell 11 percent between 1996 and 2001.

The amount of money spent for fishing and hunting trips and equipment rose from 1991 to 1996 and fell from 1996 to 2001. Total fishing expenditures rose 37 percent from $31.2 billion in 1991 to $42.7 billion in 1996; and, then fell 17 percent to $35.6 billion in 2001. Likewise, hunting expenditures increased from $16.0 billion in 1991 to $23.3 billion in 1996—45 percent increase—and then fell 12 percent to $20.6 billion in 2001.

Wildlife Watching

Comparing the results from the last three surveys finds different trends for various types of wildlife watching. The number of wildlife watchers decreased 17 percent from 1991 to 1996 and increased 5 percent from 1996 to 2001—with 76.1 million participants in 1991, 62.9 million in 1996, and 66.1 million in 2001. Residential wildlife watching, the preeminent type of wildlife watching, lead this trend with an 18 percent drop from 1991 to 1996 and a 4 percent increase from 1996 to 2001. Unlike residential wildlife watching, nonresidential wildlife watching dropped throughout the '90s and early '00s with a 21 percent drop from 1991 to 1996 and an 8 percent drop from 1996 to 2001. Days afield by participants tended upward, counter to the trend in participation, although the increase is not statistically significant. Total expenditures for wildlife watching increased 21 percent from 1991 to 1996 and 16 percent from 1996 to 2001, making an overall increase of 41 percent from 1991 to 2001.

Differences in the 1991, 1996, and 2001 Surveys

The 1996 and 2001 Surveys underwent a number of changes in order to improve data collection, lower costs, and meet the data needs of its users. The most significant design differences in the three surveys are as follows:

1. The 1991 Survey data was collected by interviewers filling out paper questionnaires. The data entries were keyed in a separate operation after the interview. The 1996 and 2001 survey data were collected by the use of computer-assisted interviews. The questionnaires were programmed into computers, and interviewers keyed in the responses at the time of the interview.

2. The 1991 Survey screening phase was conducted in January and February of 1991, when the sample households were contacted and a household respondent was interviewed on behalf of the entire household. The 1991 screening interview consisted primarily of sociodemographic questions and wildlife-related recreation questions concerning activity in the year 1990 and intentions for the year 1991. The screening interviews for the 1996 and 2001 Surveys were conducted April through June of their survey years in conjunction with the first wave of the detailed interviews. The screening interviews consisted primarily of sociodemographic questions and wildlife-related recreation questions concerning activity in the previous year (1995 or 2000) and intentions for the survey year (1996 or 2001).

3. In the 1991 Survey, an attempt was made to contact every sample person in all three detailed interview waves. In 1996 and 2001, respondents who were interviewed in the first detailed interview wave were not contacted again until the third wave. Also, all interviews in the second wave were conducted by telephone. In-person interviews were only conducted in the first and third waves.

Important instrument differences in the 1991, 1996, and 2001 Surveys

1. The 1991 Survey collected information on all wildlife-related recreation purchases made by participants without reference to where the purchase was made. The 1996 and 2001 Surveys asked in which state the purchase was made.

2. In 1991, respondents were asked what kind of fishing they did, i.e., Great Lakes, other freshwater, or saltwater, and then were asked in what states they fished. In 1996 and 2001, respondents were asked in which states they fished and then were asked the pertinent kind of fishing questions. This method had the advantage of not asking about,

for example, saltwater fishing when they only fished in a noncoastal state. In 1991, respondents were asked how many days they "actually" hunted or fished for a particular type of game or fish and then how many days they "chiefly" hunted or fished for the same type of game or fish rather than another type of game or fish. To get total days of hunting or fishing for a particular type of game or fish, the "actually" day response was used, while to get the sum of all days of hunting or fishing, the "chiefly" days were summed. In 1996 and 2001, respondents were asked their total days of hunting or fishing in the United States and each state, then how many days they hunted or fished for a particular type of game or fish.

Trip-related and equipment expenditure categories were not the same for all Surveys. "Guide fee" and "Pack trip or package fee" were two separate trip-related expenditure items in 1991, while they were combined into one category in the 1996 and 2001 Surveys. "Boating costs" was added to the 1996 and 2001 hunting and wildlife-watching trip-related expenditure sections. "Heating and cooking fuel" was added to all of the trip-related expenditure sections. "Spearfishing equipment" was moved from a separate category to the "Other" list. "Rods" and "Reels" were two separate categories in 1991 but were combined in 1996 and 2001. "Lines, hooks, sinkers, etc." was one category in 1991 but split into "Lines" and "Hooks, sinkers, etc." in 1996 and 2001. "Food used to feed other wildlife" was added to the wildlife-watching equipment section, "Boats" and "Cabins" were added to the wildlife-watching special equipment section, and "Land leasing and ownership" was added to the wildlife-watching expenditures section.

5. Questions asking sportspersons if they participated as much as they wanted were added in 1996 and 2001. If the sportspersons said no, they were asked why not.

6. The 1991 Survey included questions about participation in organized fishing competitions; anglers using bows and arrows, nets or seines, or spearfishing; hunters using pistols or handguns and target shooting in preparation for hunting. These questions were not asked in 1996 and 2001.

7. The 1996 Survey included questions about catch and release fishing and persons with disabilities participating in wildlife-related recreation. These questions were not part of the 1991 Survey. The 2001 Survey included questions about persons with disabilities participating in wildlife-related recreation but not about catch and release fishing.

8. The 1991 Survey included questions about average distance traveled to recreation sites. These questions were not included in the 1996 and 2001 Surveys.

9. The 1996 Survey included questions about the last trip the respondent took. Included were questions about the type of trip, where the activity took place, and the distance and direction to the site visited. These questions were not asked in 2001.

10. The 1991 Survey collected data on hunting, fishing, and wildlife watching by U.S. residents in Canada. The 1996 and 2001 Surveys collected data on fishing and wildlife-watching by U.S. residents in Canada.

Important instrument changes in the 2001 Survey

1. The 1991 and 1996 single race category "Asian or Pacific Islander" was changed to two categories "Asian" and "Native Hawaiian or Other Pacific Islander." In 1991 and 1996, the respondent was required to pick only one category, while in 2001 the respondent could pick any combination of categories. The next question stipulated that the respondent could only be identified with one category and then asked what that category was.

2. The 1991 and 1996 land leasing and ownership sections asked the respondent to combine the two types of land use into one and give total acreage and expenditures. In 2001, the two types of land use were explored separately.

3. The 1991 and 1996 wildlife watching sections included questions on birdwatching for residential users only. The 2001 Survey added a question on birdwatching for nonresidential users. Also, questions on the use of birding life lists and how many species the respondent can identify were added in 2001.

4. "Recreational vehicles" was added to the sportspersons and wildlife watchers special equipment section in 2001. "House trailer" was added to the sportspersons special equipment section.

5. Total personal income was asked in the detailed phase of the 1996 Survey. This was changed to total household income in the 2001 Survey.

6. A question was added to the trip-related expenditures section in the 2001 Survey to ascertain how much of the total was spent in the respondent's state of residence when the respondent participated in hunting, fishing, or wildlife watching out-of-state.

7. Boating questions were added to the 2001 Surveys fishing section. The respondent was asked about the extent of boat usage for the three types of fishing.

8. The 1996 Survey included questions about the months residential wildlife watchers fed birds. These questions were not repeated in the 2001 Survey.

9. The contingent valuation sections of the three types of wildlife-related recreation were altered, using an open-ended question format instead of 1996's dichotomous choice format.

Table B-1. **Comparison of Wildlife-Related Recreation in the United States: 1991 to 2001**

(U.S. population 16 years old and older. Numbers in thousands)

Participants, days, and expenditures	1991 (Number)	2001 (Number)	1991-2001 (Percent change)	1996 (Number)	2001 (Number)	1996-2001 (Percent change)
Hunting						
Hunters, total	14,063	13,034	–7	13,975	13,034	–7
Hunting days, total	235,806	228,368	–3*	256,676	228,368	–11
Hunting expenditures, total (2001 dollars) [1]	$16,031,197	$20,611,025	29	$23,293,156	$20,611,025	–12*
Fishing						
Anglers, total	35,578	34,067	–4	35,246	34,067	–3
Fishing days, total	511,329	557,394	9	625,893	557,394	–11
Fishing expenditures, total (2001 dollars) [1]	$31,175,168	$35,632,132	14	$42,710,679	$35,632,132	–17
Wildlife Watching						
Total wildlife watching	76,111	66,105	–13	62,868	66,105	5
Residential	73,904	62,928	–15	60,751	62,928	4
Nonresidential	29,999	21,823	–27	23,652	21,823	–8
Days, nonresidential	342,406	372,006	9*	313,790	372,006	19
Wildlife-watching expenditures, total (2001 dollars) [1]	$24,002,990	$33,730,868	41	$29,062,524	$33,730,868	16

* Not different from zero at the 5 percent confidence level.

[1] All 2001 and 1996 expenditure categories are adjusted to make them comparable to 1991.

Table B-2. **Anglers and Hunters by Census Division: 1991, 1996, and 2001**

(U.S. population 16 years old and older. Numbers in thousands)

Sportspersons	1991		1996		2001	
	Number	Percent	Number	Percent	Number	Percent
UNITED STATES						
Total population	189,964	100	201,472	100	212,298	100
Sportspersons	39,979	21	39,694	20	37,805	18
Anglers	35,578	19	35,246	17	34,067	16
Hunters	14,063	7	13,975	7	13,034	6
New England						
Total population	10,180	100	10,306	100	10,575	100
Sportspersons	1,658	16	1,673	16	1,504	14
Anglers	1,545	15	1,520	15	1,402	13
Hunters	444	4	465	5	386	4
Middle Atlantic						
Total population	29,216	100	29,371	100	29,806	100
Sportspersons	4,508	15	4,192	14	3,810	13
Anglers	3,871	13	3,627	12	3,250	11
Hunters	1,746	6	1,453	5	1,633	5
East North Central						
Total population	32,188	100	33,121	100	34,082	100
Sportspersons	7,202	22	6,912	21	6,400	19
Anglers	6,264	19	6,006	18	5,655	17
Hunters	2,789	9	2,712	8	2,421	7
West North Central						
Total population	13,504	100	13,875	100	14,430	100
Sportspersons	4,143	31	3,977	29	4,239	29
Anglers	3,647	27	3,416	25	3,836	27
Hunters	1,709	13	1,917	14	1,710	12
South Atlantic						
Total population	33,682	100	36,776	100	39,286	100
Sportspersons	6,996	21	7,282	20	6,957	18
Anglers	6,441	19	6,636	18	6,451	16
Hunters	2,083	6	2,050	6	1,875	5
East South Central						
Total population	11,667	100	12,459	100	12,976	100
Sportspersons	2,984	26	2,907	23	2,865	22
Anglers	2,635	23	2,514	20	2,543	20
Hunters	1,279	11	1,301	10	1,164	9
West South Central						
Total population	19,926	100	21,811	100	23,337	100
Sportspersons	5,125	26	5,093	23	4,924	21
Anglers	4,592	23	4,616	21	4,375	19
Hunters	1,843	9	1,812	8	1,988	9
Mountain						
Total population	10,092	100	11,966	100	13,308	100
Sportspersons	2,488	25	2,761	23	2,757	21
Anglers	2,079	21	2,411	20	2,443	18
Hunters	1,069	11	1,061	9	1,020	8
Pacific						
Total population	29,508	100	31,787	100	34,498	100
Sportspersons	4,875	17	4,897	15	4,349	13
Anglers	4,505	15	4,501	14	4,111	12
Hunters	1,101	4	1,203	4	837	2

Table B-3. Wildlife-Watching (Nonconsumptive) Participants by Census Division: 1991, 1996, and 2001

(U.S. population 16 years old and older. Numbers in thousands)

Wildlife watching	1991		1996		2001	
	Number	Percent	Number	Percent	Number	Percent
UNITED STATES						
Total population	189,964	100	201,472	100	212,298	100
Wildlife-watching participants	76,111	40	62,868	31	66,105	31
Nonresidential	29,999	16	23,652	12	21,823	10
Residential	73,904	39	60,751	30	62,928	30
New England						
Total population	10,180	100	10,306	100	10,575	100
Wildlife-watching participants	4,598	45	3,710	36	3,875	37
Nonresidential	1,856	18	1,443	14	1,155	11
Residential	4,544	45	3,586	35	3,765	36
Middle Atlantic						
Total population	29,216	100	29,371	100	29,806	100
Wildlife-watching participants	10,556	36	8,185	28	8,740	29
Nonresidential	4,166	14	2,960	10	2,849	10
Residential	10,282	35	8,023	27	8,452	28
East North Central						
Total population	32,188	100	33,121	100	34,082	100
Wildlife-watching participants	14,511	45	11,731	35	11,631	34
Nonresidential	5,572	17	4,501	14	3,571	10
Residential	14,175	44	11,297	34	11,196	33
West North Central						
Total population	13,504	100	13,875	100	14,430	100
Wildlife-watching participants	6,924	51	5,089	37	6,206	43
Nonresidential	2,654	20	1,927	14	2,059	14
Residential	6,722	50	4,900	35	5,938	41
South Atlantic						
Total population	33,682	100	36,776	100	39,286	100
Wildlife-watching participants	13,047	39	11,252	31	11,395	29
Nonresidential	4,450	13	3,992	11	3,469	9
Residential	12,813	38	10,964	30	10,911	28
East South Central						
Total population	11,667	100	12,459	100	12,976	100
Wildlife-watching participants	4,864	42	3,904	31	4,514	35
Nonresidential	1,592	14	1,118	9	1,086	8
Residential	4,765	41	3,795	30	4,390	34
West South Central						
Total population	19,926	100	21,811	100	23,337	100
Wildlife-watching participants	7,035	35	5,933	27	5,747	25
Nonresidential	2,459	12	2,096	10	1,822	8
Residential	6,817	34	5,773	26	5,490	24
Mountain						
Total population	10,092	100	11,966	100	13,308	100
Wildlife-watching participants	4,437	44	4,099	34	4,619	35
Nonresidential	2,215	22	1,967	16	2,019	15
Residential	4,145	41	3,855	32	4,282	32
Pacific						
Total population	29,508	100	31,787	100	34,498	100
Wildlife-watching participants	10,139	34	8,966	28	9,377	27
Nonresidential	5,035	17	3,648	11	3,793	11
Residential	9,641	33	8,558	27	8,504	25

Appendix C

Appendix C. Participants 6 to 15 Years Old

The 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation was carried out in two phases. The first (or screening) phase began in April 2001. The main purpose of this phase was to collect information about persons 16 years old and older in order to develop a sample of potential sportsmen and wildlife-watching participants for the second (or detailed) phase. Information was also collected on the number of persons 6 to 15 years old who participated in wildlife-related recreation activities in 2000. These data are reported here in order to include the recreation activity of 6- to 15-year-olds in this report.

It is important to emphasize that the information reported here from the 2001 screening questionnaires relates to activity only up to and including 2000. Also, these data were based on long-term recall (at least 12-month recall was required for most of these tables) and were reported, in most cases, by one household respondent speaking for all household members rather than the shorter term recall of the actual participant, as in the case of the 2001 detailed phase.

Tables C-1 to C-3 report data on participants 6 to 15 years old in 2000. Detailed expenditures and recreational activity data were not gathered for the 6- to 15-year-old participants.

Because of the difference in methodologies of the screening phase and the detailed phase of the 2001 Survey, the data are not comparable. Only participants 16 years old and older were eligible for the detailed phase. The detailed phase was a series of three interviews conducted at 4-month intervals. The screening interviews were 1-year recall. The shorter recall period of the detailed phase had better data accuracy. It has been found in survey studies that in many cases longer recall periods result in over-estimating participation in and expenditures on wildlife-related recreation activities.

Table C-1. **Arizona Residents 6 to 15 Years Old Participating in Fishing and Hunting: 2000**

(State population 6 to 15 years old. Numbers in thousands)

Sportspersons	Sportspersons 6 to 15 years old		
	Number	Percent of sports-persons	Percent of population
Total sportspersons	**211**	**100**	**26**
Total anglers	**205**	**97**	**25**
Fished only	183	87	23
Fished and hunted	*22	*10	*3
Total hunters	***28**	***13**	***3**
Hunted only	...	...	...
Hunted and fished	*22	*10	*3

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses. Column showing percent of sportspersons is based on the "Total sportspersons" row. Column showing percent of population is based on the state population 6 to 15 years old, including those who did not fish or hunt. Data reported on this table are from screening interviews in which one adult household member responded for household members 6 to 15 years old. The screening interview required the respondent to recall 12 months worth of activity. Includes state residents who fished or hunted only in other countries.

Table C-2. **Selected Characteristics of Arizona Resident Anglers and Hunters 6 to 15 Years Old: 2000**

(State population 6 to 15 years old. Numbers in thousands)

Characteristic	Population		Sportspersons (fished or hunted)			Anglers			Hunters		
	Number	Percent	Number	Percent who participated	Percent of sportspersons	Number	Percent who participated	Percent of anglers	Number	Percent who participated	Percent of hunters
Total persons	**806**	**100**	**211**	**26**	**100**	**205**	**25**	**100**	***28**	***3**	***100**
Population Density of Residence											
Urban	726	90	193	27	92	188	26	91	*25	*3	*90
Rural	80	10	*18	*22	*8	*18	*22	*9	...	...	...
Population Size of Residence											
Metropolitan statistical areas (MSA)	669	83	184	28	87	179	27	87	*20	*3	*72
1,000,000 or more	458	57	137	30	65	133	29	65	...	...	...
250,000 to 999,999	136	17	*39	*28	*18	*39	*28	*19	...	...	...
50,000 to 249,999	74	9	...	...	...	...	...	...	...	...	...
Outside MSA	137	17	*27	*20	*13	*27	*20	*13	...	...	...
Sex											
Male	401	50	137	34	65	133	33	65	*21	*5	*75
Female	405	50	75	18	35	73	18	35	...	...	...
Age											
6 to 8 years	235	29	*47	*20	*22	*45	*19	*22	...	...	...
9 to 11 years	265	33	71	27	33	69	26	33	...	...	...
12 to 15 years	306	38	94	31	45	92	30	45	*17	*6	*62
Ethnicity											
Hispanic	277	34	*33	*12	*16	*31	*11	*15	...	...	...
Non-Hispanic	529	66	178	34	84	174	33	85	*25	*5	*89
Race											
White	729	90	194	27	92	192	26	94	*22	*3	*81
Black	*30	*4	...	...	...	...	...	...	...	...	...
All others	*47	*6	...	...	...	...	...	...	...	...	...
Annual Household Income											
Less than $10,000	*36	*4	...	...	...	...	...	...	...	...	...
$10,000 to $19,999	76	9	...	...	...	...	...	...	...	...	...
$20,000 to $29,999	107	13	...	...	...	...	...	...	...	...	...
$30,000 to $39,999	140	17	*43	*31	*20	*41	*29	*20	...	...	...
$40,000 to $49,999	84	10	*25	*29	*12	*25	*29	*12	...	...	...
$50,000 to $74,999	105	13	*43	*41	*21	*43	*41	*21	...	...	...
$75,000 or more	117	14	51	44	24	*47	*40	*23	...	...	...
Not reported	141	18	*30	*21	*14	*30	*21	*15	...	...	...

* Estimate based on a small sample size. ... Sample size too small to report data reliably.

Note: Percent who participated shows the percent of each row's population who participated in the activity named by the column (the percent of those living in urban areas who fished, etc.). Remaining percent columns show the percent of each column's participants who are described by the row heading (the percent of anglers who lived in urban areas, etc.). Data reported on this table are from screening interviews in which one adult household member responded for 6 to 15 years old. The screening interview required the respondent to recall 12 months worth of activity. Includes state residents who fished or hunted only in other countries.

Table C-3. **Arizona Residents 6 to 15 Years Old Participating in Wildlife Watching: 2000**

(State population 6 to 15 years old. Numbers in thousands)

Participants	Number	Percent of participants	Percent of population
Total participants	**249**	**100**	**31**
Nonresidential	95	38	12
Residential	215	87	27
Observe wildlife	170	68	21
Photograph wildlife	*35	*14	*4
Feed wild birds or other wildlife	138	56	17
Maintain plantings or natural areas	*27	*11	*3

* Estimate based on a small sample size.

Note: Detail does not add to total because of multiple responses. The column showing percent of participants is based on total participants. The column showing percent of population is based on the state population 6 to 15 years old, including those who did not participate in wildlife watching. Data reported on this table are from screening interviews in which one adult household member responded for household members 6 to 15 years old. The screening interview required the respondent to recall 12 months worth of activity.

Appendix D

Appendix D. Sample Design and Statistical Accuracy

This Appendix is presented in two parts. The first part is the U.S. Census Bureau Source and Accuracy Statement. This statement describes the sampling design for the 2001 Survey and highlights the steps taken to produce estimates from the completed questionnaires. The statement explains the use of standard errors and confidence intervals. It also provides comprehensive information about errors characteristic of surveys, and formulas and parameters to calculate an approximate standard error or confidence interval for each number published in this report. The second part reports approximate standard errors (S.E.s) for selected measures of participation and expenditures for wildlife-related recreation. Tables D-1 to D-3 show common estimates by state with their estimated standard errors. Tables D-4 to D-9 provide parameters for computing standard errors.

Source and Accuracy Statement for the Arizona State Report of the 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation

Source of Data

The estimates in this report are based on data collected in the *2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* (FHWAR).

The 2001 FHWAR Survey was designed to provide state-level estimates of the number of participants in recreational hunting and fishing, and in wildlife-watching activities (e.g., wildlife observation). Information was collected on the number of participants, where and how often they participated, the type of wildlife encountered, and the amounts of money spent on wildlife-related recreation.

The survey was conducted in two stages: an initial screening of households to identify likely sportspersons and wildlife-watching participants, and a series of follow-up interviews of selected persons to collect detailed data about their wildlife-related recreation during 2001.

The 2001 FHWAR state samples were selected from expired samples of the Current Population Survey (CPS).

Sample Design

A. CPS - Current Population Survey

The expired CPS samples used for the 2001 FHWAR had been selected initially from 1990 decennial census files with coverage in all 50 states and the District of Columbia. The samples, while active, had been continually updated to reflect new construction. The sample addresses were located in 754 geographic areas consisting of a county or several contiguous counties.

B. The FHWAR Screening Sample

The screening sample consisted of households identified from the above sources. In Arizona, 2,829 household interviews were assigned to be interviewed. Of these, 10.9 percent were found to be vacant or otherwise not enumerated. Of the remaining households, about 32.1 percent could not be enumerated because the occupants were not found at home after repeated calls or were unavailable for some other reason.

Overall, **1,623** completed household interviews were obtained for a state response rate of **67.9** percent. The field representatives asked screening questions for all household members 6 years old and older. Interviewing for the screen was conducted during April, May, and June of 2001.

Data for the FHWAR sportspersons sample and wildlife-watchers sample were collected in three waves. The first wave started in April 2001, the second in September 2001, and the third in January 2002. In the sportspersons sample, all persons who hunted or fished in 2001 by the time of the screening interview were interviewed in the first wave. The remaining sportspersons sample were interviewed in the second wave. All sample persons (from both the first and second waves) were interviewed in the third wave.

The reference period was the preceding 4 months for waves 1 and 2. In wave 3, the reference period was either 4 or 8 months depending on when the sample person was first interviewed.

C. The Detailed Samples

Two independent detailed samples were chosen from the FHWAR screening sample. One consisted of sportspersons (people who hunt or fish) and the other of wildlife watchers (people who observe, photograph, or feed wildlife).

1. Sportspersons

The Census Bureau selected the state detailed samples based on information reported during the screening phase. Every person 16 years old and older in the FHWAR screening sample was assigned to a sportspersons stratum based on time devoted to hunting/fishing in the past and time expected to be devoted to hunting/fishing in the future.

The four sportspersons categories were:

Active - a person who had already participated in hunting/fishing in 2001 at the time of the screener interview.

Likely - a person who had not participated in 2001 at the time of the screener but had participated in 2000 OR said they were likely to participate in 2001.

Inactive - a person who had not participated in 2000 or 2001 AND said they were somewhat unlikely to participate in 2001.

Nonparticipant - a person who had not participated in 2000 or 2001 AND said they were very unlikely to participate in 2001.

Persons were selected for the detailed phase based on these groupings.

Active sportspersons were given the detailed interview twice—at the same time of the screening interview (April-June 2001) and again in January/February 2002. Likely sportspersons and a subsample of the inactive sportspersons were also interviewed twice—first in September/October 2001, then in January/February 2002. If Census field representatives were not able to obtain the first interview, they attempted to interview the person in the final interviewing period with the reference period being the entire year. Persons in the nonparticipant group were not eligible for a detailed interview.

About **680** persons were designated for interviews in Arizona. Overall, **555** detailed sportspersons interviews were completed for a response rate of **81.6** percent.

2. Wildlife Watchers

The wildlife-watching state detailed sample also was selected based on information reported during the screening phase. Every person 16 years of age and older was assigned to a category based on time devoted to wildlife-watching activities in previous years, participation in 2001 by the time of the screening interview, and intentions to participate in activities during the remainder of 2001.

Each person was placed into one of the following five groups based on their past participation:

Active - a person who had already participated in 2001 at the time of the screening interview.

Avid - a person who had not yet participated in 2001 but in 2000 had taken trips to participate in wildlife-watching activities for 21 or more days or had spent $300 or more.

Average - a person who had not yet participated in 2001 but in 2000 had taken trips to wildlife-watch for less than 21 days and had spent less than $300 OR had not participated in wildlife-watching activities but said they were very likely to in the remainder of 2001.

Infrequent - a person who had not participated in 2000 or 2001 but said they were somewhat likely or somewhat unlikely to participate in the remainder of 2001.

Nonparticipant - a person who had not participated in 2000 or 2001 and said they were very unlikely to participate during the remainder of 2001.

Persons were selected for the detailed phase based on these groupings. Persons in the nonparticipant group were not eligible for a detailed interview. A subsample of each of the other groups was selected to receive a detailed interview with the chance of being selected diminishing as the likelihood of participation diminished.

Wildlife-watching participants were given the detailed interview twice. Some received their first detailed interview at the same time as the screening interview (April-June 2001). The rest received their first detailed interview in September/October 2001. All wildlife-watching participants received their second interview in January/February 2002. If Census field representatives were not able to obtain the first interview, they attempted to interview the person in the final interviewing period with the reference period being the entire year.

About **515** persons were designated for interviews in Arizona. Overall, **436** detailed wildlife-watching participant interviews were completed for a response rate of **84.7** percent.

Estimation Procedure

Several stages of adjustments were used to derive the final 2001 FHWAR person weights. A brief description of the major components of the weights is given below.

All statistics for the population 6 to 15 years of age were derived from the screening interview. Statistics for the population 16 and over came from both the screening and detailed interviews. Estimates which came from the screening sample are presented in Appendix C.

A. Screening Sample

Every interviewed person in the screening sample received a weight that was the product of the following factors:

1. *Base Weight.* The base weight is the inverse of the household's probability of selection.

2. *Household Noninterview Adjustment.* The noninterview adjustment inflated the weight assigned to interviewed households to account for households eligible for interview but for which no interview was obtained.

3. *First-Stage Adjustment.* The 754 areas designated for our samples were selected from over 2,000 such areas of the United States.

Some sample areas represent only themselves and are referred to as self-representing. The remaining areas represent other areas similar in selected characteristics and are thus designated nonself-representing. The first-stage factor reduces the component of variation arising from sampling the nonself-representing areas.

4. *Second-Stage Adjustment.* This adjustment brings the estimates of the total population in each state into agreement with census-based estimates of the civilian noninstitutional and nonbarrack military populations for each state.

B. Sportspersons Sample

Every interviewed person in the sportspersons detailed sample received a weight that was the product of the following factors:

1. *Screening Weight.* This is the individual's final weight from the screening sample.

2. *Sportspersons Stratum Adjustment.* This factor inflated the weights of persons selected for the detailed sample to account for the subsampling done within each sportsperson's stratum.

3. *Sportspersons Noninterview Adjustment.* This factor adjusts the weights of the interviewed sportspersons to account for sportspersons selected for the detailed sample for whom no interview was obtained. A person was considered a noninterview if he/she were not interviewed in the third wave of interviewing.

4. *Sportspersons Ratio Adjustment Factor.* This is a ratio adjustment of the detailed sample to the screening sample within sportspersons sampling stratum. This adjustment brings the population estimates of persons age 16 years old or older from the detailed sample into agreement with the same estimates from the screening sample, which was a much larger sample.

C. Wildlife-Watchers Sample

Every interviewed person in the wildlife-watchers detailed sample received a weight that was the product of the following factors:

1. *Screening Weight.* This is the individual's final weight from the screening sample.

2. *Wildlife-Watchers Stratum Adjustment.* This factor inflated the weights of persons selected for the detailed sample to account for the subsampling done within each wildlife-watcher stratum.

3. *Wildlife-Watchers Noninterview Adjustment.* This factor adjusts the weights of the interviewed wildlife-watching participants to account for wildlife watchers selected for the detailed sample for which no interview was obtained. A person was considered a noninterview if he/she were not interviewed in the third wave of interviewing.

4. *Wildlife-Watchers Ratio Adjustment Factor.* This is a ratio adjustment of the detailed sample to the screening sample within wildlife-watchers sampling strata. This adjustment brings the population estimates of persons age 16 years old or older from the detailed sample into agreement with the same estimates from the screening sample, which was a much larger sample.

Accuracy of the Estimates

Since the 2001 estimates came from a sample, they may differ from figures from a complete census using the same questionnaires, instructions, and enumerators. A sample survey estimate has two possible types of error—sampling and nonsampling. The accuracy of an estimate depends on both types of error, but the full extent of the nonsampling error is unknown. Consequently, one should be particularly careful when interpreting results based on a relatively small number of cases or on small differences between estimates. The standard errors for the 2001 FHWAR estimates primarily indicate the magnitude of sampling error. They also partially measure the effect of some nonsampling errors in responses and enumeration, but do not measure systematic biases in the data. (Bias is the average over all possible samples of the differences between the sample estimate and the actual value.)

Nonsampling Variability

Let us suppose that a comparable complete enumeration was conducted. That is, an interview is attempted for every person 16 years old and older in the United States. Chances are we will not correctly estimate every parameter under consideration (for example, the proportion of people who fished). In this instance, the difference is due solely to nonsampling errors. Nonsampling errors also occur in sample surveys and can be attributed to several sources including the following:

- The inability to obtain information about all cases in the sample.
- Definitional difficulties.
- Differences in the interpretation of questions.
- Respondents' inability or unwillingness to provide correct information.
- Respondents' inability to recall information.
- Errors made in data collection such as in recording or coding the data.
- Errors made in the processing of data.
- Errors made in estimating values for missing data.
- Failure to represent all units with the sample (undercoverage).

Overall CPS undercoverage is estimated to be about 8 percent. Generally, undercoverage is larger for males than for females and larger for Blacks and other races combined than for Whites. Ratio estimation to independent population controls, as described previously, partially corrects for the bias due to survey undercoverage. However, biases exist in the estimates to the extent that missed persons in missed households or missed persons in interviewed households have different

characteristics from those of interviewed persons in the same age group.

Comparability of Data. Data obtained from the 2001 FHWAR and other sources are not entirely comparable. This results from differences in field interviewer training and experience and in differing survey processes. This is an example of nonsampling variability not reflected in the standard errors. Use caution when comparing results from different sources (See Appendix B).

Note When Using Small Estimates. Because of the large standard errors involved, summary measures (such as medians and percentage distributions) would probably not reveal useful information when computed on a base smaller than 100,000. Take care in the interpretation of small differences. For instance, even a small amount of nonsampling error can cause a borderline difference to appear significant or not, thus distorting a seemingly valid hypothesis test.

Sampling Variability

The particular sample used for the 2001 FHWAR Survey is one of a large number of all possible samples of the same size that could have been selected using the same sample design. Estimates derived from the different samples would differ from each other. This sample-to-sample variability is referred to as sampling variability and is generally measured by the standard error. The exact sampling error is unknown. However, guides to the potential size of the sampling error are provided by the standard error of the estimate.

Since the standard error of a survey estimate attempts to provide a measure of the variation among the estimates from the possible samples, it is a measure of the precision with which an estimate from a particular sample approximates the average result of all possible samples. Standard errors, as calculated by methods described next in "Standard Errors and Their Use," are primarily measures of sampling variability, although they may include some nonsampling error.

The sample estimate and its standard error enable one to construct a confidence interval, a range that would include the average result of all possible samples with a known probability. For example, if all possible samples were surveyed under essentially the same general conditions and using the same sample design, and if an estimate and its standard error were calculated from each sample, then approximately 90 percent of the intervals from 1.645 standard errors below the estimate to 1.645 standard errors above the estimate would include the average result of all possible samples.

A particular confidence interval may or may not contain the average estimate derived from all possible samples. However, one can say with specified confidence that the interval includes the average estimate calculated from all possible samples.

Standard errors may also be used to perform hypothesis testing—a procedure for distinguishing between population parameters using sample estimates. One common type of hypothesis is that the population parameters are different. An example would be comparing the proportion of anglers to the proportion of hunters.

Tests may be performed at various levels of significance where a significance level is the probability of concluding that the characteristics are different when, in fact, they are the same. To conclude that two characteristics are different at the 0.10 level of significance, the absolute value of the estimated difference between characteristics must be greater than or equal to 1.645 times the standard error of the difference.

This report uses 90-percent confidence intervals and 0.10 levels of significance to determine statistical validity. Consult standard statistical textbooks for alternative criteria.

Standard Errors and Their Use. A number of approximations are required to derive, at a moderate cost, standard errors applicable to all the estimates in this report. Instead of providing an individual standard error for each estimate, parameters are provided to calculate standard errors for each type of characteristic. These parameters are listed in tables D-4 to D-9. Methods for using the parameters to calculate standard errors of various estimates are given in the next sections.

Standard Errors of Estimated Numbers. The approximate standard error, s_x, of an estimated number shown in this report can be obtained using the following formulas. Formula (1) is used to calculate the standard errors of levels of sportspersons, anglers, and wildlife watchers.

$$s_x = \sqrt{ax^2 + bx} \qquad (1)$$

Here, x is the size of the estimate and a and b are the parameters in the tables associated with the particular characteristic.

Formula (2) is used for standard errors of aggregates, i.e., trips, days, and expenditures.

$$s_x = \sqrt{ax^2 + bx + \frac{cx^2}{y}} \qquad (2)$$

Here, x is again the size of the estimate; y is the base of the estimate; and a, b, and c are the parameters in the tables associated with the particular characteristic.

Illustration of the Computation of the Standard Error of an Estimated Number

Suppose that a table shows that 37,805,000 persons 16+ either fished or hunted in the United States in 2001. Using formula (1) with the parameters a= -0.000020 and b= 4,289 from table D-5, the approximate standard error of the estimates number of 37,805,000 sportspersons 16+ is

$$s_x = \sqrt{(-0.000020)(37,805,000)^2 + (4,289)(37,805,000)} = 365,500$$

The 90-percent confidence interval for the estimated number of sportspersons 16+ is from 37,203,800 to 38,406,200, i.e., 37,805,000 ± 1.645 x 365,500. Therefore, a conclusion that the average estimate derived from all possible samples lies within a range computed in this way would be correct for roughly 90 percent of all possible samples.

Suppose that another table shows that 13,034,300 hunters 16+ engaged in 228,367,800 days of participation in 2001 in the United States. Using formula (2) with the parameters a = 0.000168, b = -11,904, and c = 12,496 from table D-7, the approximate standard error on 228,367,800 estimated days on an estimated base of 13,034,300 hunters is

$$s_x = \sqrt{0.000168x228,367,800^2 + (-11,904)x228,367,800 + \frac{12,496x228,367,800^2}{13,034,300}} = 7,486,100$$

The 90-percent confidence interval on the estimate of 228,367,800 days is from 216,053,200 to 240,682,400, i.e., 228,367,800 ± 1.645 x 7,486,100. Again, a conclusion that the average estimate derived from all possible samples lies within a range computed in this way would be correct for roughly 90 percent of all possible samples.

Standard Errors of Estimated Percentages. The reliability of an estimated percentage, computed using sample data for both numerator and denominator, depends on the size of the percentage and its base. Estimated percentages are relatively more reliable than the corresponding estimates of the numerators of the percentages, particularly if the percentages are 50 percent or more. When the numerator and the denominator of the percentage are in different categories, use the parameter in the tables indicated by the numerator.

The approximate standard error, $s_{x,p}$, can be obtained by use of the formula

$$s_{x,p} = \sqrt{\frac{bp(100-p)}{x}} \qquad (3)$$

Here, x is the total number of sportspersons, hunters, etc., which is the base of the percentage; p is the percentage ($0 \leq p \leq 100$); and b is the parameter in the tables associated with the characteristic in the numerator of the percentage.

Illustration of the Computation of the Standard Error of an Estimated Percentage

Suppose that a table shows that of the 13,034,300 hunters 16+ in the United States, 22.7 percent hunted migratory birds. From table D-5, the appropriate b parameter is 3,793. Using formula (3), the approximate standard error on the estimate of 22.7 percent is

$$s_{x,p} = \sqrt{\frac{3,793x22.7x(100-22.7)}{13,034,300}} = 0.71$$

Consequently, the 90-percent confidence interval for the estimate percentage of migratory bird hunters 16+ is from 21.5 percent to 23.9 percent, i.e. 22.7 ± 1.645 x 0.71.

Standard Error of a Difference. The standard error of the difference between two sample estimates is approximately equal to

$$s_{x-y} = \sqrt{s_x^2 + s_y^2} \qquad (4)$$

where s_x and s_y are the standard errors of the estimates x and y. The estimates can be numbers, percentages, ratios, etc. This will represent the actual standard error quite accurately for the difference between estimates of the same characteristic in two different areas, or for the difference between separate and uncorrelated characteristics in the same area. However, if there is a high positive (negative) correlation between the two characteristics, the formula will overestimate (underestimate) the true standard error.

Illustration of the Computation of the Standard Error of a Difference

Suppose that a table shows that of the 13,034,300 hunters in the United States, 9,985,100 were licensed hunters, and 1,689,300 were exempt from a hunting license. The corresponding percentages are 76.6 percent and 13.0 percent, respectively. The apparent difference between the percent of licensed hunters and hunters who are exempt from a license is 63.6 percent. Using formula (3) and the appropriate b parameter from Table D-5, the approximate standard errors of 76.6 percent and 13.0 percent are 0.83 and 1.59, respectively. Using formula (4), the approximate standard error of the estimated difference of 63.6 percent is

$$s_{x-y} = \sqrt{0.72^2 + 0.57^2} = 0.92$$

The 90-percent confidence interval on the difference between licensed hunters and those who were exempt from a hunting license is from 62.1 to 65.1 percent, i.e., 63.6 ± 1.645 x 0.92. Since the interval does not contain zero, we can conclude with 90 percent confidence that the percentage of licensed hunters is greater than the percentage of hunters who are exempt from a hunting license.

Standard Errors of Estimated Averages. Certain mean values for sportspersons, anglers, etc., shown in the report were calculated as the ratio of two numbers. For example, average days per angler is calculated as:

$$\frac{x}{y} = \frac{\text{total days}}{\text{total anglers}}$$

Standard errors for these averages may be approximated by the use of formula (5) below.

$$s_{x/y} = \frac{x}{y}\sqrt{\left[\frac{s_x}{x}\right]^2 + \left[\frac{s_y}{y}\right]^2 - 2r\frac{s_x s_y}{xy}} \qquad (5)$$

In formula (5), r represents the correlation coefficient between the numerator and the denominator of the estimate. In the above formula, use 0.7 as an estimate of r.

Illustration of the Computation of the Standard Error of an Estimated Average

Suppose that a table shows that the average days per angler 16 years old or older for all fishing was 16.4 days. Using formulas (1) and (2) above, we compute the standard error on total days, 557,393,900, and total anglers, 34,071,100, to be 8,726,000 and 350,600, respectively. The approximate standard error on the estimated average of 16.4 days is

$$s_{x/y} = \frac{557{,}393{,}900}{34{,}071{,}100}\sqrt{\left[\frac{8{,}726{,}000}{557{,}393{,}900}\right]^2 + \left[\frac{350{,}600}{34{,}071{,}100}\right]^2 - 2\times 0.7\times\frac{8{,}726{,}000\times 350{,}600}{557{,}393{,}900\times 34{,}071{,}100}} = 0.18$$

therefore, the 90-percent confidence interval on the estimated average of 16.4 days is from 16.1 to 16.7, i.e., 16.4 ± 1.645 x 0.18.

Table D-1. **Approximate Standard Errors of Resident Anglers, Days of Fishing by State Residents, and Expenditures for Fishing by State Residents**

(Numbers in thousands)

State	Participation		Days		Expenditures in dollars	
	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error
Alabama	634	28	10,841	452	$600,364	$83,099
Alaska	185	8	2,445	262	$213,781	$18,009
Arizona	394	23	4,327	510	$326,068	$59,815
Arkansas	546	31	11,776	1,296	$386,164	$50,245
California	2,389	124	27,878	3,138	$2,162,620	$362,896
Colorado	626	31	7,639	638	$772,537	$105,782
Connecticut	324	17	5,496	631	$327,787	$33,697
Delaware	89	5	1,341	213	$92,474	$20,799
Florida	2,109	91	43,439	4,318	$3,426,795	$420,930
Georgia	1,043	52	15,559	1,799	$612,414	$87,929
Hawaii	113	7	2,662	554	$97,707	$18,656
Idaho	261	15	3,097	330	$230,006	$25,225
Illinois	1,415	73	21,603	1,814	$1,147,325	$186,223
Indiana	833	41	15,537	1,865	$469,379	$80,663
Iowa	524	28	8,534	672	$319,087	$37,612
Kansas	431	21	6,426	907	$331,195	$46,971
Kentucky	630	36	12,135	1,041	$551,378	$64,270
Louisiana	763	44	12,130	1,412	$648,285	$61,451
Maine	216	13	3,449	397	$158,533	$25,580
Maryland	531	31	7,112	1,027	$495,458	$63,380
Massachusetts	500	23	8,387	789	$460,207	$71,626
Michigan	1,039	66	18,869	3,090	$960,469	$172,980
Minnesota	1,345	59	29,344	3,270	$1,251,828	$159,542
Mississippi	475	28	9,325	1,652	$317,408	$47,936
Missouri	982	46	12,396	859	$757,928	$93,775
Montana	221	11	3,656	468	$202,751	$25,563
Nebraska	265	13	3,378	281	$179,878	$27,770
Nevada	180	12	2,230	387	$235,599	$39,457
New Hampshire	164	8	2,974	305	$186,436	$29,039
New Jersey	639	30	10,973	1,632	$712,797	$90,138
New Mexico	215	13	2,407	358	$196,661	$30,674
New York	1,340	79	23,167	2,932	$921,777	$169,508
North Carolina	894	45	14,615	1,280	$924,937	$105,704
North Dakota	142	6	2,584	217	$182,746	$19,235
Ohio	1,390	65	22,014	1,944	$905,650	$97,445
Oklahoma	685	35	13,228	1,554	$493,616	$62,689
Oregon	551	27	8,720	1,081	$590,738	$64,749
Pennsylvania	1,270	80	21,417	2,271	$762,242	$69,554
Rhode Island	95	5	1,638	179	$117,842	$15,812
South Carolina	604	28	10,321	946	$496,974	$58,949
South Dakota	146	8	2,414	289	$101,893	$15,767
Tennessee	803	40	15,451	1,519	$468,841	$92,443
Texas	2,381	137	34,148	5,143	$2,129,921	$258,534
Utah	424	17	5,346	344	$400,214	$36,948
Vermont	104	7	1,969	212	$72,326	$10,954
Virginia	888	47	14,774	1,198	$688,844	$103,105
Washington	873	37	13,520	1,142	$966,874	$89,559
West Virginia	273	16	4,346	349	$146,288	$19,717
Wisconsin	981	56	19,360	2,175	$844,539	$115,997
Wyoming	121	6	1,901	220	$135,280	$20,747

Table D-2. Approximate Standard Errors of Resident Hunters, Days of Hunting by State Residents, and Expenditures for Hunting by State Residents

(Numbers in thousands)

State	Participation		Days		Expenditures in dollars	
	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error
Alabama	316	22	7,262	1,047	$652,845	$132,117
Alaska	74	5	982	174	$111,678	$18,869
Arizona	124	13	1,649	345	$225,651	$74,606
Arkansas	306	28	7,075	1,140	$387,489	$69,954
California	278	43	3,695	1,076	$368,701	$136,459
Colorado	168	18	1,982	338	$185,277	$39,453
Connecticut	45	7	824	199	$69,359	$24,196
Delaware	16	2	279	85	$18,424	$6,513
Florida	270	39	5,865	1,370	$545,627	$130,063
Georgia	377	32	7,882	1,023	$505,894	$88,503
Hawaii	18	4	322	92	$17,266	$6,678
Idaho	151	12	1,784	252	$168,088	$32,796
Illinois	340	44	5,842	2,234	$527,776	$181,913
Indiana	284	28	5,016	939	$279,670	$70,406
Iowa	203	16	4,086	725	$185,082	$38,141
Kansas	202	17	3,424	443	$223,192	$41,908
Kentucky	271	23	4,538	482	$384,751	$59,977
Louisiana	316	28	7,325	1,565	$528,155	$98,836
Maine	123	10	2,169	366	$119,144	$23,982
Maryland	124	14	1,992	352	$143,143	$33,553
Massachusetts	79	10	1,727	406	$113,461	$24,955
Michigan	725	54	8,784	1,080	$556,880	$131,109
Minnesota	582	40	8,673	930	$601,497	$97,084
Mississippi	257	23	6,977	1,283	$306,157	$74,399
Missouri	413	37	6,715	1,184	$490,761	$115,416
Montana	171	11	2,112	240	$161,239	$25,032
Nebraska	128	10	1,963	203	$135,092	$28,074
Nevada	49	6	558	104	$149,292	$38,530
New Hampshire	53	5	1,300	169	$55,775	$11,739
New Jersey	125	15	3,000	641	$156,786	$48,877
New Mexico	114	13	1,594	371	$171,811	$39,225
New York	642	51	13,124	1,611	$975,691	$202,696
North Carolina	313	33	8,372	1,717	$566,504	$124,764
North Dakota	92	7	1,417	232	$78,745	$11,192
Ohio	481	39	11,077	2,011	$645,875	$157,380
Oklahoma	241	24	5,965	1,012	$323,215	$66,265
Oregon	236	18	2,917	481	$432,628	$104,547
Pennsylvania	867	68	14,091	1,656	$901,173	$144,957
Rhode Island	11	2	193	61	$15,214	$6,679
South Carolina	232	21	4,657	810	$280,030	$52,190
South Dakota	90	7	1,347	215	$112,448	$25,400
Tennessee	320	31	6,962	1,248	$659,063	$122,182
Texas	1,126	108	15,186	3,248	$1,467,034	$244,695
Utah	178	13	2,512	386	$308,510	$53,000
Vermont	75	6	1,460	195	$53,805	$8,476
Virginia	308	32	5,819	866	$340,273	$64,904
Washington	231	17	3,311	352	$339,470	$81,858
West Virginia	235	16	4,791	637	$201,282	$39,066
Wisconsin	591	41	9,305	1,151	$634,413	$119,195
Wyoming	65	6	870	100	$62,958	$13,319

Table D-3. Approximate Standard Errors of Resident Nonresidential Participants, Days of Nonresidential Participation by State Residents, and Trip-Related Expenditures for Nonresidential Activities by State Residents

(Numbers in thousands)

State	Participation		Days		Expenditures in dollars	
	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error
Alabama	280	40	3,782	746	$109,926	$24,800
Alaska	118	12	1,766	316	$49,035	$11,646
Arizona	329	45	3,537	571	$174,237	$34,239
Arkansas	190	43	1,545	407	$70,811	$24,515
California	2,191	254	25,134	4,024	$894,746	$175,803
Colorado	531	61	6,555	1,258	$183,470	$45,064
Connecticut	248	34	6,770	1,596	$82,766	$16,616
Delaware	43	8	595	135	$15,727	$4,444
Florida	1,279	171	20,371	4,477	$508,519	$118,715
Georgia	302	67	5,175	1,581	$174,269	$55,270
Hawaii	50	9	1,099	282	$32,319	$10,688
Idaho	214	43	2,540	558	$58,842	$15,651
Illinois	683	81	9,208	2,307	$254,698	$57,633
Indiana	484	67	12,319	3,071	$140,460	$34,864
Iowa	354	41	6,960	1,751	$77,012	$19,264
Kansas	286	34	2,470	347	$81,231	$15,404
Kentucky	329	40	6,365	2,093	$93,187	$24,333
Louisiana	250	39	2,364	562	$53,259	$18,104
Maine	174	21	3,384	614	$64,202	$16,036
Maryland	413	53	5,959	1,226	$188,565	$47,258
Massachusetts	427	59	10,992	2,658	$145,764	$30,650
Michigan	747	122	13,192	2,762	$332,609	$90,218
Minnesota	562	82	13,406	4,473	$124,187	$25,145
Mississippi	103	22	3,466	1,449	$32,803	$13,539
Missouri	581	129	12,028	3,251	$130,720	$32,074
Montana	195	22	2,975	631	$75,050	$20,978
Nebraska	150	21	1,853	405	$34,077	$7,859
Nevada	128	20	1,108	199	$50,162	$13,058
New Hampshire	139	21	1,641	371	$47,666	$11,395
New Jersey	564	66	10,772	2,207	$230,096	$41,929
New Mexico	205	26	5,375	1,059	$69,803	$29,473
New York	1,112	138	21,423	4,045	$471,293	$128,063
North Carolina	367	62	5,458	1,857	$121,730	$30,272
North Dakota	48	8	450	97	$6,946	$2,453
Ohio	887	94	20,687	5,732	$266,849	$54,800
Oklahoma	340	55	3,834	1,079	$42,413	$9,434
Oregon	561	68	7,288	981	$175,678	$25,285
Pennsylvania	1,173	148	19,672	4,214	$445,924	$108,522
Rhode Island	58	8	974	230	$9,876	$2,638
South Carolina	282	56	4,458	1,374	$79,258	$21,827
South Dakota	77	14	1,762	518	$14,195	$3,862
Tennessee	375	57	3,601	663	$114,678	$29,348
Texas	1,043	240	11,956	2,858	$689,729	$188,701
Utah	323	35	3,651	1,162	$93,928	$24,813
Vermont	109	17	2,081	526	$30,384	$6,397
Virginia	581	84	9,599	2,345	$225,247	$59,484
Washington	874	90	12,238	1,311	$433,951	$77,714
West Virginia	166	22	2,494	599	$62,283	$16,816
Wisconsin	769	85	14,215	3,348	$268,911	$43,219
Wyoming	95	10	1,778	411	$27,150	$9,198

Table D-4. Parameters a and b for Calculating Approximate Standard Errors of Sportspersons, Anglers, Hunters, and Wildlife-Watching Participants

(These parameters are to be used only to calculate estimates of standard errors for characteristics developed from the screening sample)

State	6 years old and over		6-15 year olds only	
	a	b	a	b
United States	**–0.000017**	**4,191**	**–0.000103**	**4,052**
Alabama	–0.000380	1,493	–0.002270	1,417
Alaska	–0.000948	512	–0.004485	489
Arizona	–0.000399	1,559	–0.001931	1,303
Arkansas	–0.001069	2,456	–0.006381	2,444
California	–0.000221	6,329	–0.001083	5,240
Colorado	–0.000521	1,819	–0.002707	1,551
Connecticut	–0.000336	996	–0.002227	1,007
Delaware	–0.000428	283	–0.002753	284
Florida	–0.000427	5,619	–0.002768	5,390
Georgia	–0.000506	3,361	–0.002856	3,156
Hawaii	–0.000659	705	–0.003146	538
Idaho	–0.001285	1,393	–0.006911	1,424
Illinois	–0.000427	4,572	–0.002310	4,043
Indiana	–0.000578	3,064	–0.003388	2,867
Iowa	–0.000803	2,084	–0.004015	1,702
Kansas	–0.000659	1,528	–0.004453	1,804
Kentucky	–0.000493	1,760	–0.002857	1,623
Louisiana	–0.000874	3,461	–0.004231	3,101
Maine	–0.000903	1,035	–0.005933	1,086
Maryland	–0.000463	2,151	–0.002684	1,973
Massachusetts	–0.000193	1,065	–0.001155	928
Michigan	–0.000606	5,281	–0.003588	5,206
Minnesota	–0.001004	4,226	–0.006232	4,574
Mississippi	–0.000955	2,368	–0.005090	2,275
Missouri	–0.000681	3,305	–0.004295	3,440
Montana	–0.001327	1,085	–0.008909	1,292
Nebraska	–0.000479	714	–0.002742	713
Nevada	–0.000588	845	–0.003740	838
New Hampshire	–0.000455	482	–0.002565	446
New Jersey	–0.000220	1,591	–0.001309	1,434
New Mexico	–0.000887	1,389	–0.004190	1,228
New York	–0.000298	4,907	–0.001768	4,458
North Carolina	–0.000506	3,353	–0.004040	4,161
North Dakota	–0.000994	581	–0.007996	816
Ohio	–0.000402	4,091	–0.002543	4,199
Oklahoma	–0.000774	2,323	–0.003822	2,007
Oregon	–0.000429	1,261	–0.002347	1,105
Pennsylvania	–0.000563	6,176	–0.004018	6,755
Rhode Island	–0.000327	291	–0.002062	276
South Carolina	–0.000542	1,838	–0.002857	1,566
South Dakota	–0.000788	522	–0.005465	667
Tennessee	–0.000798	3,887	–0.005230	3,954
Texas	–0.000674	11,571	–0.003386	10,479
Utah	–0.000532	948	–0.001723	667
Vermont	–0.001116	605	–0.008013	697
Virginia	–0.000636	3,870	–0.003336	3,090
Washington	–0.000190	956	–0.001070	889
West Virginia	–0.000784	1,344	–0.005315	1,323
Wisconsin	–0.000986	4,628	–0.005562	4,461
Wyoming	–0.001599	718	–0.007708	647

Table D-5. **Parameters a and b for Calculating Approximate Standard Errors of Levels for the Detailed Sportspersons Sample**

State	Sportspersons and anglers 16+		Hunters 16+	
	a	b	a	b
United States	**–0.000020**	**4,289**	**–0.000018**	**3,793**
Alabama	–0.000459	1,570	–0.000489	1,672
Alaska	–0.001213	535	–0.000986	435
Arizona	–0.000405	1,492	–0.000389	1,431
Arkansas	–0.001229	2,452	–0.001529	3,050
California	–0.000275	7,111	–0.000265	6,859
Colorado	–0.000602	1,924	–0.000649	2,075
Connecticut	–0.000385	976	–0.000429	1,086
Delaware	–0.000483	288	–0.000658	392
Florida	–0.000395	4,789	–0.000478	5,788
Georgia	–0.000512	3,106	–0.000472	2,858
Hawaii	–0.000509	454	–0.001043	930
Idaho	–0.001216	1,176	–0.001263	1,221
Illinois	–0.000487	4,492	–0.000648	5,979
Indiana	–0.000549	2,501	–0.000654	2,982
Iowa	–0.000888	1,953	–0.000659	1,450
Kansas	–0.000642	1,292	–0.000832	1,673
Kentucky	–0.000835	2,592	–0.000679	2,110
Louisiana	–0.000991	3,270	–0.000831	2,743
Maine	–0.000954	959	–0.000937	942
Maryland	–0.000516	2,087	–0.000397	1,605
Massachusetts	–0.000252	1,221	–0.000278	1,344
Michigan	–0.000643	4,874	–0.000592	4,491
Minnesota	–0.001114	4,105	–0.000889	3,278
Mississippi	–0.001033	2,169	–0.001124	2,360
Missouri	–0.000678	2,843	–0.000857	3,597
Montana	–0.001195	832	–0.001299	904
Nebraska	–0.000676	851	–0.000707	890
Nevada	–0.000617	893	–0.000576	833
New Hampshire	–0.000501	478	–0.000547	522
New Jersey	–0.000252	1,588	–0.000305	1,918
New Mexico	–0.000711	944	–0.001259	1,672
New York	–0.000364	5,159	–0.000301	4,277
North Carolina	–0.000451	2,646	–0.000616	3,618
North Dakota	–0.000814	389	–0.001295	619
Ohio	–0.000421	3,638	–0.000381	3,292
Oklahoma	–0.000954	2,454	–0.001042	2,679
Oregon	–0.000652	1,715	–0.000558	1,468
Pennsylvania	–0.000635	5,902	–0.000628	5,840
Rhode Island	–0.000423	322	–0.000510	389
South Carolina	–0.000527	1,616	–0.000696	2,133
South Dakota	–0.001088	605	–0.001013	563
Tennessee	–0.000577	2,490	–0.000749	3,232
Texas	–0.000603	9,273	–0.000733	11,259
Utah	–0.000616	955	–0.000714	1,106
Vermont	–0.001086	520	–0.001184	567
Virginia	–0.000546	2,930	–0.000658	3,529
Washington	–0.000427	1,913	–0.000305	1,368
West Virginia	–0.000781	1,133	–0.000891	1,288
Wisconsin	–0.001026	4,165	–0.000832	3,378
Wyoming	–0.001209	452	–0.001693	633

Table D-6. **Parameters a, b, and c for Calculating Approximate Standard Errors for Expenditures for the Detailed Sportspersons Sample**

State	Sportspersons and anglers 16+			Hunters 16+		
	a	b	c	a	b	c
United States	**0.000209**	**–81,938**	**16,935**	**0.000849**	**–338,404**	**16,347**
Alabama	0.009175	–61,525	5,860	0.024164	–1,049	5,155
Alaska	–0.006112	–16,312	2,378	0.021402	39,475	489
Arizona	0.026819	–7,817	2,578	0.092593	–90,851	2,072
Arkansas	0.004633	–23,748	6,426	0.014405	–62,820	5,523
California	0.021384	–70,276	15,458	0.113785	–136,283	6,339
Colorado	0.009864	–19,578	5,293	0.022718	–94,581	3,887
Connecticut	0.001877	–16,928	2,684	0.079125	–34,580	1,895
Delaware	0.040550	–7,042	809	0.105687	–2,637	311
Florida	0.007654	20,508	14,478	0.023874	–155,743	8,973
Georgia	0.014008	–36,268	6,059	0.008831	–95,649	7,863
Hawaii	0.025846	–5,658	1,067	0.097125	–938	788
Idaho	–0.002875	–29,463	3,878	0.016379	–64,453	3,289
Illinois	0.019572	10,051	8,854	0.085878	–549,762	11,311
Indiana	0.022696	–22,961	5,102	0.033251	–103,911	8,051
Iowa	0.005064	–20,998	4,528	0.016656	–138,890	5,392
Kansas	0.015860	18,185	1,730	0.021785	–50,528	2,671
Kentucky	0.004591	–41,799	5,443	0.008079	–58,497	4,208
Louisiana	–0.00040	–65,739	6,880	0.019445	–21,541	4,669
Maine	0.017717	–5,998	1,713	0.025284	–13,157	1,841
Maryland	0.008904	–8,843	3,522	0.032998	–11,255	2,731
Massachusetts	0.016262	–12,678	3,571	0.024064	–1,953	1,922
Michigan	0.019792	–127,849	11,921	0.040148	–65,705	9,671
Minnesota	0.008800	–47,947	9,688	0.014048	–30,492	6,738
Mississippi	0.016340	–3,615	2,838	0.048203	–12,376	2,679
Missouri	0.010252	–14,938	4,700	0.044792	–43,432	4,274
Montana	0.006249	2,944	2,023	0.012939	–22,671	1,865
Nebraska	0.017333	–3,651	1,663	0.027267	–39,668	2,043
Nevada	0.018933	–14,263	1,569	0.031588	–38,184	1,658
New Hampshire	0.018219	–2,158	896	0.019369	–16,561	1,337
New Jersey	0.008872	–21,461	4,161	0.074090	–47,814	2,925
New Mexico	0.009851	–15,340	3,013	0.038148	4,904	1,576
New York	0.026625	–55,537	8,963	0.021960	–65,942	13,270
North Carolina	0.002898	–52,854	8,564	0.027058	–70,174	6,255
North Dakota	0.005072	–1,310	842	0.013476	10,740	593
Ohio	0.006294	–16,259	6,658	0.032819	–343,279	12,406
Oklahoma	0.004660	–37,618	7,562	0.020499	–34,984	4,891
Oregon	0.003145	–20,997	4,657	0.039506	–209,288	4,495
Pennsylvania	–0.001615	–16,424	12,085	0.015010	–45,176	9,408
Rhode Island	0.008233	–3,065	823	0.163731	1,552	318
South Carolina	0.006577	–24,715	4,435	0.014150	–45,230	4,751
South Dakota	0.016156	–6,396	1,099	0.041242	13,567	850
Tennessee	0.033971	–12,176	3,739	0.025020	25,879	2,858
Texas	0.002571	–181,509	27,582	0.012511	228,353	16,609
Utah	0.001106	–2,243	3,125	0.011415	–63,829	3,240
Vermont	0.011747	–4,625	1,103	0.008540	–5,531	1,212
Virginia	0.016382	–12,594	5,152	0.014967	–57,318	6,583
Washington	0.003760	–21,018	4,033	0.047027	–137,577	2,616
West Virginia	0.006720	–9,550	2,878	0.031204	–15,338	1,413
Wisconsin	0.012407	–19,300	6,202	0.024061	–96,808	6,607
Wyoming	0.012293	–9,179	1,344	0.024311	–20,666	1,350

Table D-7. **Parameters a, b, and c for Calculating Approximate Standard Errors for Days or Trips for the Detailed Sportspersons Sample**

State	Sportspersons and anglers 16+			Hunters 16+		
	a	b	c	a	b	c
United States	**-0.000359**	**-10,379**	**21,216**	**0.000168**	**-11,904**	**12,496**
Alabama	-0.014899	-1,645	10,642	0.010257	-3,745	3,494
Alaska	0.004232	-2,284	1,514	0.017337	-1,630	1,174
Arizona	0.009813	-504	1,658	0.025859	-2,427	2,408
Arkansas	-0.000591	-4,532	7,151	0.005331	-5,600	6,560
California	0.005829	-32,577	19,133	0.046419	-14,455	11,763
Colorado	-0.002514	-4,440	6,304	0.005304	-3,344	4,269
Connecticut	0.004894	-1,905	2,797	0.032365	-208	1,179
Delaware	0.019930	-260	493	0.042659	-901	837
Florida	0.004327	-8,388	12,123	0.023712	-8,026	8,704
Georgia	0.006853	-15,975	7,865	0.000498	-4,557	6,375
Hawaii	0.024692	-3,126	2,236	-0.011390	-629	1,711
Idaho	-0.003745	-3,875	4,263	0.007761	-1,392	1,956
Illinois	-0.001740	-10,299	13,115	0.116103	-25,870	11,750
Indiana	0.005471	-5,800	7,756	0.015379	-6,119	5,928
Iowa	-0.002638	-1,789	4,745	0.013073	-5,442	4,003
Kansas	0.016223	-605	1,633	-0.005996	-2,318	4,722
Kentucky	-0.001146	-3,831	5,559	-0.008903	-1,883	5,581
Louisiana	0.005167	-9,551	6,990	0.031739	-9,447	4,809
Maine	-0.001145	-2,421	3,262	0.012469	-2,544	2,121
Maryland	0.015009	-1,757	3,235	-0.000817	-3,341	4,179
Massachusetts	0.001279	-5,091	4,088	0.028210	-2,953	2,268
Michigan	0.014345	-13,184	13,688	0.005369	-5,906	7,564
Minnesota	0.003565	-17,781	12,718	-0.002763	-5,610	8,671
Mississippi	0.019493	-15,942	6,461	0.014162	-6,098	5,274
Missouri	-0.002128	-5,253	7,226	0.018480	-8,909	5,746
Montana	0.000449	-2,600	3,680	0.000401	-1,984	2,302
Nebraska	-0.001914	-1,750	2,477	-0.000535	-295	1,450
Nevada	0.021810	-2,046	1,649	-0.001816	-1,230	1,883
New Hampshire	0.002071	-1,578	1,470	0.000312	-511	902
New Jersey	0.011720	-5,526	6,959	0.022081	-3,488	3,096
New Mexico	0.001275	-6,683	5,081	0.035962	-4,491	2,409
New York	0.006773	-19,672	13,519	-0.006261	-6,261	14,001
North Carolina	-0.003764	-7,850	10,700	0.005307	-10,202	11,887
North Dakota	-0.000254	-1,046	1,099	0.013638	-2,072	1,354
Ohio	-0.002277	-12,642	14,807	0.014951	-10,264	9,111
Oklahoma	0.002908	-8,589	7,908	-0.012896	-7,384	10,343
Oregon	-0.004964	-10,252	11,849	0.014008	-4,387	3,466
Pennsylvania	-0.000351	-9,506	15,294	0.001946	-7,227	10,734
Rhode Island	0.003515	-532	829	0.036010	-680	752
South Carolina	0.001822	-4,530	4,244	0.016996	-2,924	3,226
South Dakota	0.006727	-857	1,163	0.014473	-561	1,029
Tennessee	-0.003393	-8,542	10,929	0.014450	-5,875	5,933
Texas	0.008771	-62,115	37,457	0.026724	-40,596	24,438
Utah	-0.000945	-159	2,170	0.009900	-3,490	2,684
Vermont	-0.003874	-1,213	1,671	0.001720	-943	1,254
Virginia	-0.003305	-6,179	9,142	0.003533	-4,262	5,955
Washington	0.001423	-4,085	5,250	-0.000778	-1,826	2,912
West Virginia	-0.003294	-831	2,712	0.003483	-2,510	3,463
Wisconsin	-0.000821	-11,365	13,762	0.002687	-8,025	7,969
Wyoming	0.001824	-978	1,466	0.000207	3,198	606

Table D-8. **Parameters a and b for Calculating Approximate Standard Errors of Levels of Wildlife-Watching Participants for the Detailed Wildlife-Watching Sample**

State	Nonresidential users		Wildlife-watching participants[1]	
	a	b	a	b
United States	**–0.000076**	**15,974**	**–0.000040**	**8,555**
Alabama	–0.001806	6,172	–0.000996	3,406
Alaska	–0.003984	1,757	–0.003102	1,368
Arizona	–0.001862	6,858	–0.001138	4,191
Arkansas	–0.005383	10,740	–0.003708	7,397
California	–0.001245	32,229	–0.000675	17,485
Colorado	–0.002666	8,521	–0.001570	5,017
Connecticut	–0.002028	5,136	–0.001170	2,963
Delaware	–0.003015	1,797	–0.001488	887
Florida	–0.002113	25,612	–0.001029	12,478
Georgia	–0.002607	15,802	–0.001239	7,512
Hawaii	–0.001747	1,558	–0.001508	1,345
Idaho	–0.011466	11,088	–0.002755	2,664
Illinois	–0.001118	10,311	–0.001182	10,900
Indiana	–0.002301	10,485	–0.001294	5,899
Iowa	–0.002614	5,750	–0.002397	5,274
Kansas	–0.002324	4,676	–0.001200	2,414
Kentucky	–0.001720	5,341	–0.001519	4,717
Louisiana	–0.002007	6,621	–0.001352	4,459
Maine	–0.003051	3,066	–0.002046	2,056
Maryland	–0.001879	7,604	–0.001100	4,449
Massachusetts	–0.001845	8,924	–0.000791	3,824
Michigan	–0.002911	22,083	–0.001385	10,506
Minnesota	–0.003859	14,226	–0.002710	9,989
Mississippi	–0.002421	5,085	–0.002331	4,896
Missouri	–0.007940	33,309	–0.002372	9,949
Montana	–0.005126	3,568	–0.003963	2,758
Nebraska	–0.002615	3,292	–0.001558	1,961
Nevada	–0.002376	3,438	–0.001641	2,375
New Hampshire	–0.003949	3,767	–0.001860	1,774
New Jersey	–0.001349	8,490	–0.000839	5,282
New Mexico	–0.003029	4,023	–0.001796	2,385
New York	–0.001303	18,488	–0.000811	11,505
North Carolina	–0.001908	11,203	–0.001382	8,114
North Dakota	–0.003144	1,503	–0.002659	1,271
Ohio	–0.001298	11,210	–0.000884	7,638
Oklahoma	–0.004011	10,317	–0.002253	5,796
Oregon	–0.003939	10,356	–0.001506	3,958
Pennsylvania	–0.002310	21,485	–0.001198	11,142
Rhode Island	–0.001581	1,205	–0.001226	934
South Carolina	–0.004009	12,288	–0.001840	5,460
South Dakota	–0.005473	3,043	–0.002845	1,582
Tennessee	–0.002163	9,330	–0.001206	5,202
Texas	–0.003860	59,315	–0.001142	17,541
Utah	–0.003023	4,685	–0.002427	3,762
Vermont	–0.007125	3,413	–0.003296	1,579
Virginia	–0.002550	13,684	–0.001540	8,266
Washington	–0.002590	11,601	–0.000842	3,773
West Virginia	–0.002233	3,226	–0.001979	2,859
Wisconsin	–0.002881	11,690	–0.002288	9,283
Wyoming	–0.004150	1,552	–0.004075	1,524

[1] Use these parameters for total wildlife-watching participants and residential participants.

Table D-9. **Parameters a, b, and c for Calculating Approximate Standard Errors for Expenditures and Days or Trips for Detailed Wildlife-Watching Sample**

State	Expenditures			Days or trips		
	a	b	c	a	b	c
United States	**–0.000286**	**–65,186**	**37,635**	**0.000052**	**543,738**	**10,948**
Alabama	0.030708	–4,434	4,714	–0.022833	–34,485	19,838
Alaska	0.041800	–4,269	1,514	–0.029715	–14,349	8,241
Arizona	0.015564	–88,920	7,092	–0.006753	8,600	9,994
Arkansas	0.010470	–232,312	19,942	–0.016982	–55,327	23,242
California	0.018066	–66,438	36,961	0.012283	199,721	11,847
Colorado	0.038817	–215,098	11,070	–0.052385	–41,128	50,721
Connecticut	0.009671	–39,324	6,004	–0.041089	–115,012	28,194
Delaware	0.048255	793	1,135	–0.017715	–10,761	3,753
Florida	0.037237	246,936	15,955	–0.011904	368,712	53,853
Georgia	0.049562	–47,365	13,337	–0.012828	–66,122	35,936
Hawaii	0.073902	–7,392	1,428	–0.107474	–50,423	10,960
Idaho	0.049578	3,816	4,179	–0.012767	26,870	10,809
Illinois	0.023791	–91,738	15,163	0.017880	–26,735	32,660
Indiana	0.031176	–6,949	11,644	–0.031304	–137,397	50,618
Iowa	0.027387	–151,677	10,811	–0.043626	–36,375	39,705
Kansas	0.014086	–26,411	5,617	–0.020112	–42,505	16,304
Kentucky	0.034724	–14,328	9,748	–0.100682	–143,695	76,120
Louisiana	0.077714	–11,409	5,935	–0.079705	–145,421	49,422
Maine	0.023033	–44,469	5,406	–0.017174	–7,365	9,098
Maryland	0.043571	–70,123	6,923	–0.033325	–216,192	46,228
Massachusetts	0.006810	–178,680	12,400	–0.031568	–234,200	47,548
Michigan	0.040492	–319,042	19,607	–0.018833	–31,270	48,594
Minnesota	0.014246	–14,209	13,809	–0.095678	–560,553	139,828
Mississippi	0.124078	18,562	3,885	–0.030843	–100,539	24,176
Missouri	0.034639	–25,636	11,799	–0.010269	219,841	37,795
Montana	0.057903	–22,171	3,776	–0.012332	5,559	10,812
Nebraska	0.024994	–4,237	3,539	–0.038650	–12,323	13,951
Nevada	0.034440	22,068	4,012	–0.005101	–34,384	8,741
New Hampshire	0.035666	–13,208	2,568	0.022014	–23,662	6,038
New Jersey	0.013039	–52,984	9,831	–0.011200	215,547	18,712
New Mexico	0.160478	–37,219	3,245	–0.041133	–40,922	17,946
New York	0.055761	–88,911	14,702	–0.018354	–352,468	78,358
North Carolina	0.016613	–38,392	14,073	–0.014391	–150,974	57,926
North Dakota	0.083798	–1,532	1,564	0.000482	–16,359	3,936
Ohio	0.013567	–190,802	23,398	0.054816	–205,827	28,294
Oklahoma	0.016264	–32,772	9,957	0.012938	93,047	14,288
Oregon	0.006779	–12,633	7,354	–0.034862	–36,621	32,540
Pennsylvania	0.029900	–197,526	29,144	0.024902	969,419	–33,184
Rhode Island	0.030265	–1,717	1,486	–0.069322	–95,835	12,964
South Carolina	0.053921	14,141	5,196	–0.019706	–230,401	46,919
South Dakota	0.057120	7,343	999	–0.031149	–123,874	14,456
Tennessee	0.037696	–9,299	8,559	0.000581	38,507	8,480
Texas	0.038651	–443,322	33,784	0.005378	354,179	23,102
Utah	0.056421	9,481	4,059	0.045711	–66,098	23,779
Vermont	0.013746	–43,820	3,010	0.010618	–34,930	7,630
Virginia	0.036266	–105,349	16,055	–0.016136	–231,865	58,093
Washington	0.018752	–46,218	10,365	–0.015432	–108,529	31,269
West Virginia	0.051192	–2,708	2,632	–0.035244	–80,788	20,819
Wisconsin	–0.001127	–25,290	18,720	–0.064163	–592,681	124,050
Wyoming	0.097425	–2,122	1,550	–0.093805	–13,385	14,702